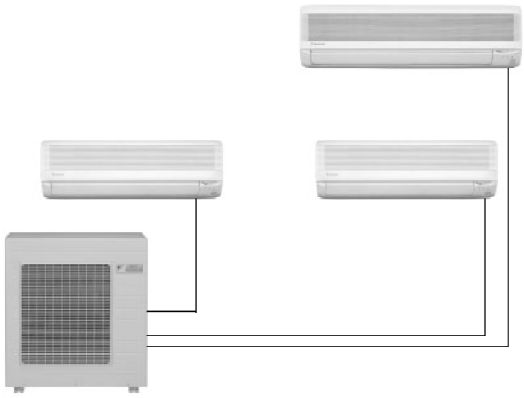
Order No.MAC0103004C3

Service Manual

Multi-Split Air Conditioner

CS-MC90AKH / CS-MC120AKH / CS-MC180AKH / CU-4MC200AKH



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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

National

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. Power supply

[50Hz]

Models		Power Suppy
Indoor unit	CS-MC90AKH	1φ, 220～240V, 50Hz
	CS-MC120AKH	
	CS-MC180AKH	
Outdoor unit	CU-4MC200AKH	1φ, 220～240V, 50Hz

Note: Power supply intake; Outdoor units.

2. Specifications

2.1. Indoor units

● **Wall mounted type**

Models			CS-MC90AKH	CS-MC120AKH	CS-MC180AKH
Front panel color			Almond wihte		
Air flow rate	m3/min	(H)	7.0	8.0	14.0
		(M)	5.9	6.9	12.0
		(L)	4.8	5.8	10.0
	cfm	(H)	247	282	494
		(M)	208	244	424
		(L)	169	205	353
Fan	Motor output	W	13	13	35
	Speed	Steps	5 Steps &Aoto		
Air direction control			Right,left,horizontal and downwards		
Air filter			Removable / washable / mildew proof		
Running current (220/240V)		A	0.16/0.17	0.19/0.20	0.60/0.55
Power consumption (220/240V)		W	35/40	40/45	130/130
Power factor (220/240V)		%	99.4/98.0	95.7/93.8	98.5/98.5
Temperature control			Microcomputer control		
Dimensions (HxWxD)		mm	250x750x180	250x750x180	298x1,050x190
Weight		kg	7	7	12
Operation noise (H/L) (220,240V)		dBA	36/29	39/32	43/35

2.2. Outdoor unit

Models			CU-4MC200AKH
Casing color			Ivory white
Compressor			Hermetically sealed rotary type
Motor output		W	1,500
Refrigera nt			R22
Charge		kg	2.3
Dimensions	H	mm	685
	W	mm	880
	D	mm	350
Weight		kg	62
Power supply intake			Outdoor unit
No,of wiring connection	Power supply		2
	Control wiring		3
Piping connection	Liquid		ϕ6.4x4
	Gass		ϕ9.5x1, ϕ12.7x1, ϕ15.9x2

Notes:

1. Max. interunit piping length for one room.
   - 25m in case of connecting FT25G,35G,50G or FHC35, 50K
   - 15m in case of connecting FT60G or FHC60K
2. Max. interunit piping length : Am for total of each room.
3. Additional charge of refrigerant is not necessary.
4. Max. installation level difference : 7.5m

Models	A
CU-4MC200AKH	60m

Conversion formulae
kcal/h=kWx860 Btu/h=kWx3414 cfm=m3minx35.3

- Cooling capacity (50Hz)

Outdoor unit	Indoor units CS	Cooling capacity (kW)	Total (kW)	Electric characteristi		
				Power consumption (W)	Running current (A)	P f
CU-4MC200AKH	90	2.56	2.56	1490	6.9	
	120	3.66	3.66	1500	7.0	
	180	4.30	4.30	1520	7.0	
	[90+90]	[2.15+2.15]	[4.30]	1520	7.0	
	90+120	1.95+2.93	4.88	1550	7.1	
	90+180	1.78+3.57	5.35	1600	7.3	
	120+120	2.67+2.67	5.34	1600	7.3	
	120+180	2.42+3.22	5.64	1625	7.5	
	180+180	2.91+2.91	5.82	1640	7.5	
	90+90+90	1.78+1.78+1.78	5.34	1600	7.3	
	90+90+120	1.62+1.62+2.42	5.66	1625	7.5	
	[90+90+180]	[1.45+1.45+2.91]	[5.81]	1640	7.5	
	90+120+120	1.45+2.18+2.18	5.81	1640	7.5	
	90+120+180	1.30+1.95+2.62	5.87	1645	7.6	
	90+180+180	1.19+2.37+2.37	5.93	1650	7.6	
	120+120+120	1.95+1.95+1.95	5.85	1645	7.6	
	120+120+180	1.78+1.78+2.37	5.93	1650	7.6	
	90+90+90+90	1.45+1.45+1.45+1.45	5.80	1640	7.5	
	90+90+90+120	1.30+1.30+1.30+1.97	5.87	1645	7.6	
	90+90+90+180	1.19+1.19+1.19+2.37	5.94	1650	7.6	
	90+90+120+120	1.19+1.19+1.78+1.78	5.94	1650	7.6	

Notes:

1.Cooling capacity is based on 27°C D.B./19.0°C W.B. (indoor temperature),35°C D.B./24°C W.B.(outdoor temperature).

2.Electric characteristics are only for outdoor unit.

3.[ ] indicates nominal capacity.

4.MAX.connection piping length.

	CU-4MC200AKH
For one room	25m
Total for all rooms	60m

5.Max.installation level difference 7.5m.

3. Dimensions

3.1. Indoor units

● **Wall mounted type**

CS-MC90AKH/CS-MC120AKH

CS-MC180AKH

3.2. Outdoor unit

CU-4MC200AKH

4. Piping diagrams

4.1. Indoor Units

CS-MC90AKH/CS-MC120AKH

CS-MC180AKH

4.2. Outdoor Unit

CU-4MC200AKH

5. Wiring diagrams

5.1. Indoor Units

CS-MC90AKH/CS-MC120AKH

CS-MC180AKH

5.2. Outdoor Unit

CU-4MC200AKH

6. Capacity tables

CU-4MC200AKH+(CS-MC90AKHx2) (50Hz)

INDOOR		OUTDOOR TEMPERATURE (°C)																
EWB	EDB	20			25			32			35			40				
°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	S
14.0	20	4.02	3.01	1.25	3.91	2.93	1.34	3.71	2.80	1.48	3.62	2.76	1.54	3.44	2.66	1.66	3.21	2
16.0	22	4.31	3.08	1.25	4.19	3.00	1.35	3.98	2.87	1.50	3.88	2.83	1.56	3.70	2.73	1.68	3.45	2
18.0	25	4.62	3.15	1.26	4.48	3.07	1.37	4.26	2.94	1.52	4.15	2.90	1.58	3.97	2.80	1.70	3.72	2
19.0	27	4.78	3.19	1.27	4.64	3.10	1.37	4.41	2.98	1.53	[4.30]	[2.93]	[1.59]	4.10	2.84	1.71	3.85	2
22.0	30	5.27	3.29	1.29	5.12	3.21	1.40	4.86	3.08	1.56	4.74	3.03	1.63	4.53	2.94	1.75	4.27	2
24.0	32	5.62	3.36	1.30	5.44	3.28	1.41	5.19	3.15	1.58	5.06	3.10	1.65	4.84	3.01	1.78	4.56	2

AFR	13.2
BF	0.22

CU-4MC200AKH+(CS-MC90AKHx2+CS-MC180AKH) (50Hz)

INDOOR		OUTDOOR TEMPERATURE (°C)																
EWB	EDB	20			25			32			35			40				
°C	°C	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	S
14.0	20	5.60	5.60	1.38	5.42	5.42	1.48	5.14	5.14	1.64	5.01	5.01	1.71	4.79	4.79	1.83	4.50	4
16.0	22	5.94	5.94	1.39	5.76	5.76	1.50	5.45	5.45	1.66	5.31	5.31	1.73	5.08	5.08	1.85	4.77	4
18.0	25	6.30	6.05	1.40	6.10	5.95	1.52	5.79	5.79	1.68	5.64	5.64	1.75	5.38	5.38	1.88	5.05	5
19.0	27	6.49	6.08	1.41	6.28	5.99	1.52	5.97	5.87	1.69	[5.81]	[5.81]	[1.76]	5.55	5.55	1.89	5.20	5
22.0	30	7.06	6.19	1.43	6.85	6.09	1.55	6.51	5.98	1.72	6.35	5.92	1.80	6.06	5.84	1.93	5.69	5
24.0	32	7.45	6.26	1.45	7.24	6.16	1.57	6.90	6.05	1.75	6.73	5.99	1.83	6.43	5.91	1.96	6.05	5

	FT	FHC
PI	0	0.99

	FT	FHC
AFR	25.3	27.2
BF	0.00	0.00

Symbols:

AFR	Air flow rate	(m3/min)
BF	Bypass factor	
EWB	Entering wet bulb temp.	(°CWB)
EDB	Entering dry bulb temp.	(°CDB)
TC	Total cooling capacity	(kW)
SHC	Sensible hert capacity	(kW)
PI	Power input	(kW)
	(Comp. + indoor + outdoor fan motor)	

Caution

TC and SHC are shown by kW

NOtes:

1. Ratings shown are net capacity which include a deduction for indoor fan motor heat.
2. [ ] shows nominal capacities.
3. SHC is based on each EWB and EDB.

   SHC*=SHC correction for other dry bulb.

   =0.02 x AFR x (1 - BF) x (DB* - EDB)

   Add SHC* to SHC. If SHC>TC then TC equal SHC.
4. Direct interpoation is permissible. Do not extrapolate.
5. Capacites are based on the following conditions.

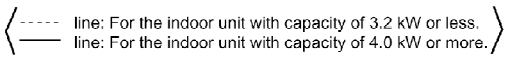
   Corresponding refrigerant piping length : 5m

   Level difference : 0m
6. Operating limit : Maximum entering air temp.to condenser is 46°C(115°F)
7. Toal Air flow rate and BF are tabulated above.
8. Add the correction to power input of each modeles as tabulated adove.(kW)

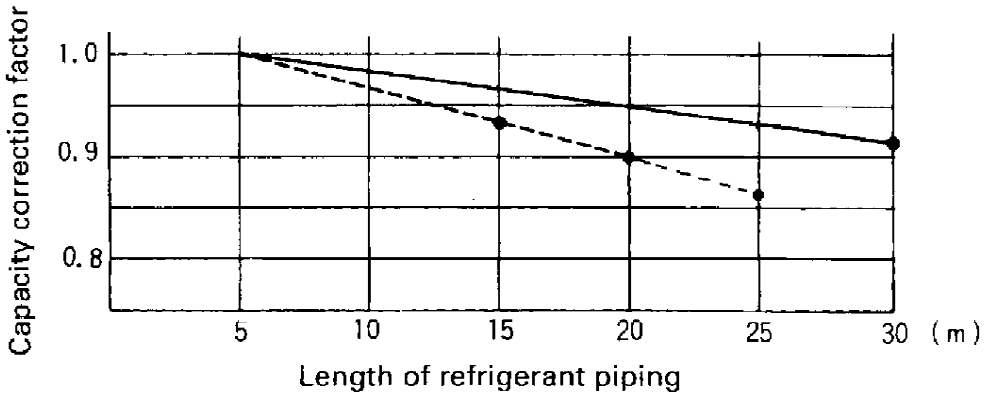
6.1. Capacity correction factor by the length of refrigerant piping (Referrence)

The cooling and the heating capacity of the unit has to be corrected in accordance with the length of refrigerant piping.(The distance between the indoor unit and the outdoor unit)

● **Split system**



[Cooling Capactiy]



Note:

1.The capacity in the range of the refrigerant additional charge

shows when the additional refrigerant is charged properly .
2.IF it is for the multi-type room ari-conditioner,the variation of the capacity will be smaller when only one indoor unit is in operation.

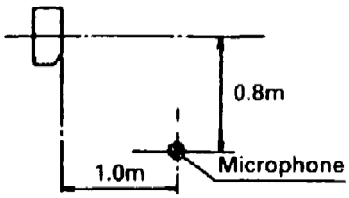
7. Operation limits

CU-4MC200AKH

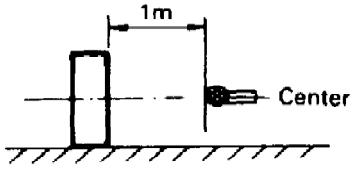
8. Sound level data

8.1. Overall sound level

● Indoor units (dBA)

Model	220-240V(50Hz)	Measuring location
	H/L	
CS-MC90AKH	36/29	
CS-MC120AKH	39/32	
CS-MC180AKH	43/35	

● Outdoor unit (dBA)

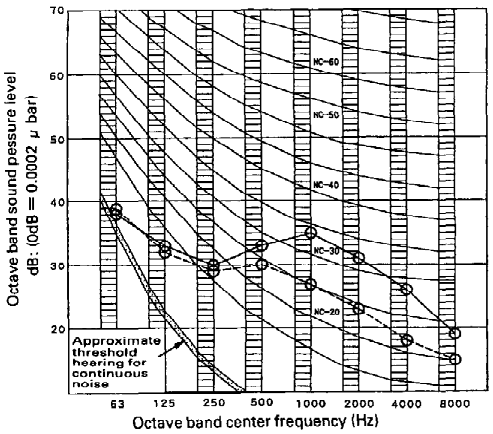
Model	220/240V(50Hz)	Measuring location
CU-4MC200AKH	54/55	

8.2. Octave band level

● Indoor units

CS-MC90AKH

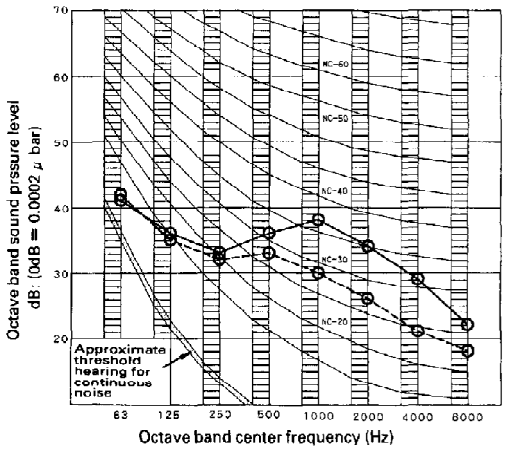
50Hz, 220V~240V



DW3211967B

CS-MC120AKH

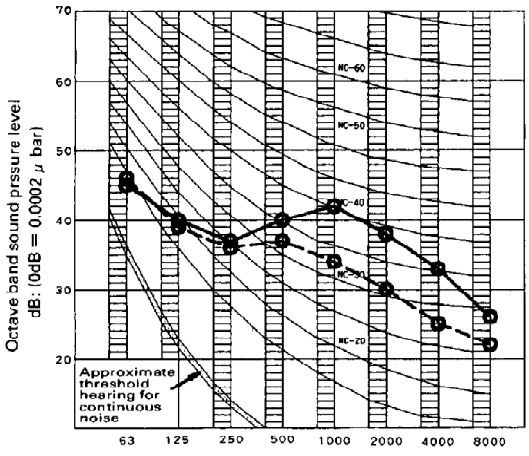
50Hz, 220V~240V



4D000706A

CS-MC180AKH

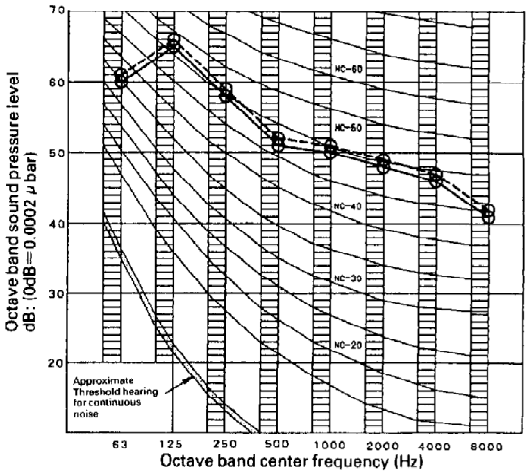
50Hz, 220V~240V



4D005957

● **outdoor unit**

CU-4MC200AKH 50Hz, 220V~240V



9. Electric characteristics

CU-4MC200AKH

Connection ratio(%)	Indoor unit	Power supply					Comp.		OFM		
		Hz-Volts	Voltage range	MCA	TOCA	MFA	LRA	RLA	W	FLA	
100	25x2	50-220 50-230 50-240	Max.264V Min.198V	9.5	-	15	33 35 36	6.4 6.7 6.9	53	0.61	N
200	25x2+50	50-220 50-230 50-240	Max.264V Min.198V	10.4	-	15	33 35 36	6.4 7.0 7.1	53	0.61	N
250(MAX)	25+50x2	50-220 50-230 50-240	Max.264V Min.198V	11.0	-	15	33 35 36	7.0 7.1 7.2	53	0.61	N

Notes:

1. **RLA is based on the follwing conditions.**
   Indoor temp.27°CDB/19.0°CWB
   Outdoor temp.35°CDB
2. **TOCA means the total value of each OC set.**
3. **Maximum allowable voltage variation between phases is 2%.**
4. **Select wire size based on the larger value of MCA or TOCA.**
5. **Instead of fuse use circuit breaker.**
6. **MCA/MFA**
   MCA=1.25xRLA+ea.FLA
   MFA≦2.25xRLA+ea.FLA
   (Next lower standard fuse rating.Min.15A)
7. **Refer to the specifications of indoor fan motor output.**
   EX.FT25,35GV1:13W FHC35,50,60KVE:45W FT50,60GVE:35W

Symbols:

MCA : Min.Circuit Amps
TOCA: Total Over-current Amps
MFA : Max.Fuse Amps
LRA : Locked Rotor Amps
RLA : Rated Load Amps
OFM : Outdoor Fan Motor
IFM : Indoor Fan Motor
FLA : Full Load Amps
W : Fan Motor Rated Output

10. Installation Manual

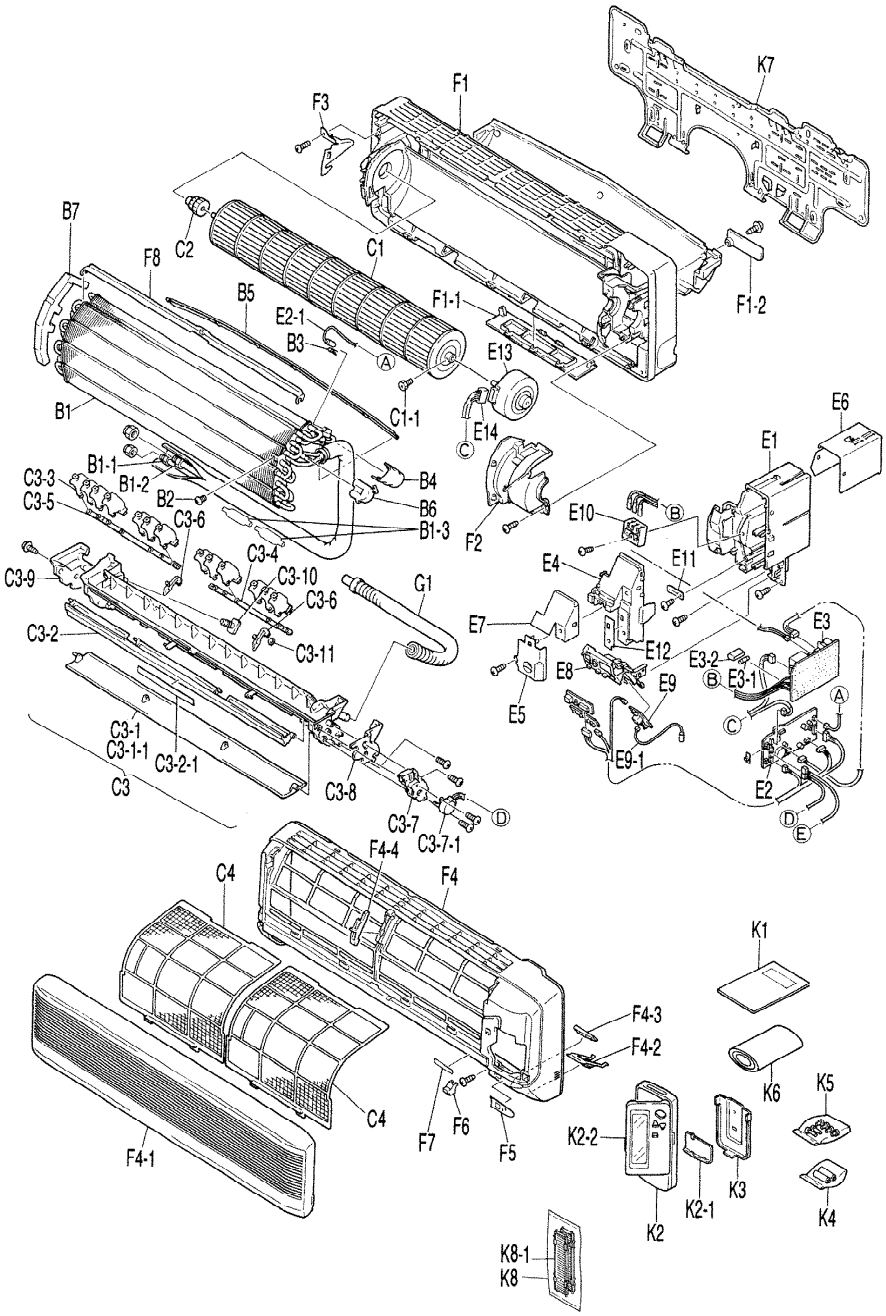
11. Operation Manual

12. Exploded View

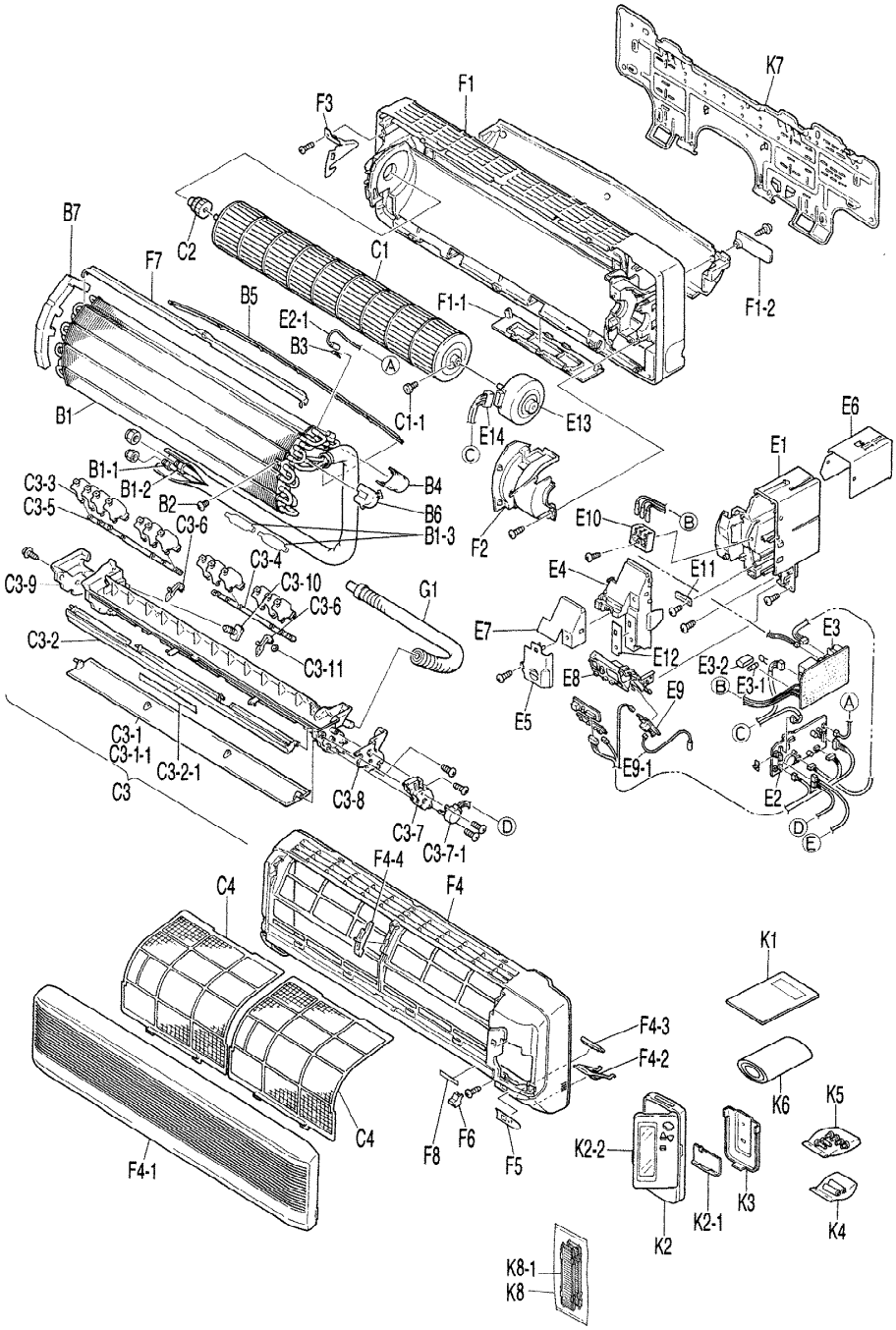
Notes:

- **The above exploded view is for the purpose of parts disassembly and replacement.**
- **The non-numbered parts are not kept as standard service parts.**

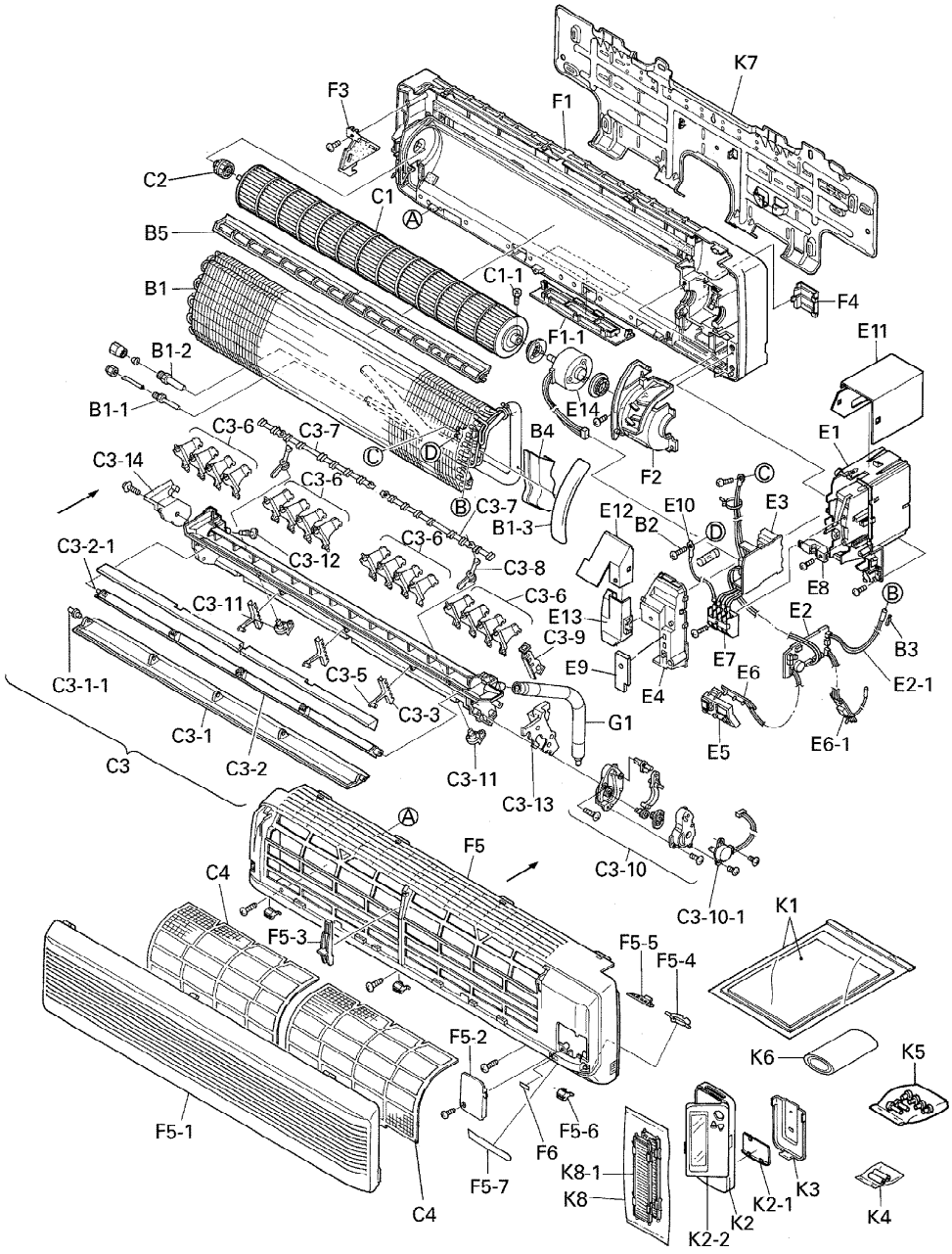
12.1. CS-MC90AKH



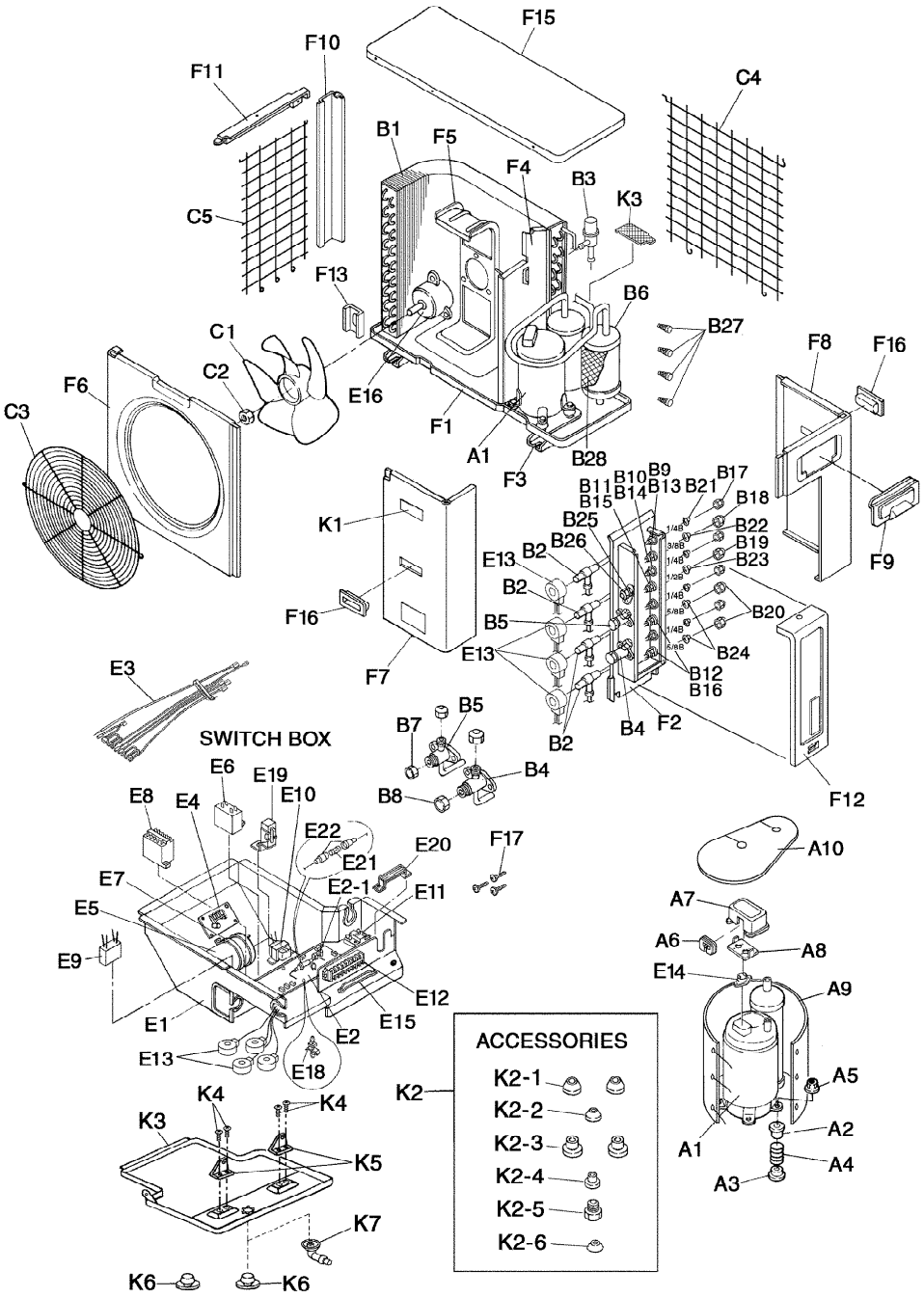
12.2. CS-MC120AKH



12.3. CS-MC180AKH



12.4. CU-4MC200AKH



13. Replacement Parts List

13.1. CS-MC90AKH

Ref. No.	Part Name & Description	Qty.	Part No.
B1	EVAPORATOR ASSÅfY	1	CW0960133
B1-1	UNION JOINT LIQUID LINE	1	CW0202262
B1-2	UNION JOINT GAS LINE	1	CW0198433
B1-3	FILTER (FOR REF.)	2	CW0916244
B2	GROUNDING TIP (W/WASHER)	1	CW0985947
B3	CLAMP THERMISTOR	1	CW641900
B4	DRIP PROOF COVER	1	CW0733627
B5	DRAIN GUIDE PLATE EVAPORATOR	1	CW0843959
B6	VIBRATION ISORATOR EVAPORATOR	1	CW1224645
B7	SEAL RUBBER EVAPOLATOR	1	CW0961484
C1	FAN ROTOR ASSÅfY	1	CW0839479
C1-1	HEX. SOCKET SCREW	1	CW0516055
C2	FAN BEARING ASSÅfY	1	CW0379403
C3	DRAIN PAN ASSÅfY	1	CW1224652
C3-1	HORIZONTAL VANE ASSÅfY	1	CW0961174
C3-1-1	HORIZONTAL VANE	1	CW0924865
C3-2	DIFFUSER ASSÅfY	1	CW1224669
C3-2-1	HEAT INSULATION COVER(10)	1	CW0959993
C3-3	VERTICAL VANE AIR DISCHARGE	12	CW0961198
C3-4	CONNECTING BAR VERTICALVANE(RIGHT)	1	CW0961206
C3-5	CONNECTING BAR VERTICALVANE(LEFT)	1	CW0961213
C3-6	KNOB (1)	2	CW0840695
C3-7	GEAR BOX ASSÅfY	1	CW1012479
C3-7-1	STEPPING MOTOR	1	CW0959537
C3-8	HEAT INSULATION COVER (RIGHT)	1	CW0841186
C3-9	HEAT INSULATION COVER (LEFT)	1	CW0841193
C3-10	DRAIN PLUG	1	CW0662282
C3-11	SPACER KNOB	2	CW0914642
C4	AIR FILTER	2	CW0836829
E1	SWITCH BOX	1	CW0961112
E2	PRINTED CIRCUIT (CONTROL UNIT)	1	CW0958976
E2-1	THERMISTOR	1	CW0958976
E3	PRINTED CIRCUIT (POWER UNIT)	1	CW0960119
E3-1	FUSE	1	CW0509002
E3-2	FUSE COVER	1	CW0334859
E4	COVER SWITCH BOX	1	CW0839253
E5	SERVICING COVER	1	CW0839448
E6	SHELTER SWITCH BOX (1)	1	CW0841528
E7	SHELTER SWITCH BOX (2)	1	CW0841559
E8	LAMP HOUSE	1	CW0839431
E9	PRINTED CIRCUIT (ANNUNCIATOR)	1	CW0949523
E9-1	THERMISTOR	1	CW1052097
E10	TERMINAL BLOCK	1	CW1032651
E11	WIRE CLIP	1	CW1229183
E12	NAMEPLATE SWITCH	1	CW1229183
E13	FAN MOTOR	1	CW0960018
E14	WIRE HARNESS FAN MOTOR	1	CW0961136
F1	BOTTOM FRAME ASSÅfY	1	CW0961477
F1-1	SERVICING COVER (BOTTOM)	1	CW1042843
F1-2	LOCK PLATE REF. PIPING	1	CW0961143
F2	SIDE PLATE (RIGHT)	1	CW1032644
F3	LEFT COVER EVAPORATOR	1	CW0839619
F4	FRONT GRILLE ASSÅfY	1	CW1224683
F4-1	FRONT PANEL	1	CW1224690

Ref. No.	Part Name & Description	Qty.	Part No.
F4-2	SMOKE PLATE SIGNAL RECEIVER	1	CW0840758
F4-3	LENS LIGHT EMITED DIODE	1	CW0840741
F4-4	HINGE LOCK	1	CW0949718
F5	NAME PLATE DISPLAY	1	CW1224676
F6	SCREW COVER (WHITE)	2	CW0839594
F7	NAMEPLATE MODEL	1	CW1224830
F8	SEAL PLATE EVAPORATOR	1	CW0839587
G1	DRAIN HOSE	1	CW0663292
K1	OPERATION MANUAL	1	CW1224847
K2	REMOTE CONTROLLER ASSÅfY	1	CW1224722
K2-1	BATTERY COVER	1	CW1190540
K2-2	COVER REMOTE CONTROLLER	1	CW1190557
K3	HOLDER REMOTE CONTROLLER	1	CW1190494
K4	BATTERY KIT	1	CW0292380
K5	SCREW KIT	1	CW0952079
K6	INSULATION TAPE	1	CW0819576
K7	MOUNTING PLATE	1	CW0836805
K8	STATICAL FILTER KIT	1	CW0941699
K8-1	STATICAL FILTER	2	CW0819552

13.2. CS-MC120AKH

Ref. No.	Part Name & Description	Qty.	Part No.
B1	EVAPORATOR ASSÅfY	1	CW0960140
B1-1	UNION JOINT LIQUID LINE	1	CW0202262
B1-2	UNION JOINT GAS LINE	1	CW0093064
B1-3	FILTER (FOR REF.)	2	CW0916244
B2	GROUNDING TIP	1	CW0985947
B3	CLAMP THERMISTOR	1	CW641900
B4	DRIP PROOF COVER	1	CW0733627
B5	DRAIN GUIDE PLATE EVAPORATOR	1	CW0843959
B6	VIBRATION ISOLATOR EVAPORATOR	1	CW1224645
B7	SEAL RUBBER EVAPOLATOR	1	CW0961484
C1	FAN ROTOR ASSÅfY	1	CW0839479
C1-1	HEX. SOCKET SCREW	1	CW0516055
C2	FAN BEARING ASSÅfY	1	CW0379403
C3	DRAIN PAN ASSÅfY	1	CW1224652
C3-1	HORIZONTAL VANE ASSÅfY	1	CW0961174
C3-1-1	HORIZONTAL VANE	1	CW0924865
C3-2	DIFFUSER ASSÅfY	1	CW1224669
C3-2-1	HEAT INSULATION COVER (10)	1	CW0959993
C3-3	VERTICAL VANE AIR DISCHARGE	12	CW0961198
C3-4	CONNECTING BAR VERTICALVANE(RIGHT)	1	CW0961206
C3-5	CW0961213 CONNECTING BAR VERTICALVANE(LEFT)	1	CW0961213
C3-6	KNOB (1)	2	CW0840695
C3-7	GEAR BOX ASSÅfY	1	CW1012479
C3-7-1	STEPPING MOTOR	1	CW0959537
C3-8	HEAT INSULATION COVER (RIGHT)	1	CW0841186
C3-9	HEAT INSULATION COVER (LEFT)	1	CW0841193
C3-10	DRAIN PLUG	1	CW0662282
C3-11	SPECER KNOB	2	CW0914642
C4	AIR FILTER	2	CW0836829
E1	SWITCH BOX	1	CW0961112

Ref. No.	Part Name & Description	Qty.	Part No.
E2	PRINTED CIRCUIT (CONTROL UNIT)	1	CW0960063
E2-1	THERMISTOR	1	CW0958976
E3	PRINTED CIRCUIT (POWER UNIT)	1	CW0960119
E3-1	FUSE	1	CW0509002
E3-2	FUSE COVER	1	CW0334859
E4	COVER SWITCH BOX	1	CW0839253
E5	SERVICING COVER	1	CW0839448
E6	SHELTER SWITCH BOX (1)	1	CW0841528
E7	SHELTER SWITCH BOX (2)	1	CW0841559
E8	LAMP HOUSE	1	CW0839431
E9	PRINTED CIRCUIT (ANNUNCIATOR)	1	CW0949523
E9-1	THERMISTOR	1	CW1052097
E10	TERMINAL BLOCK	1	CW1032651
E11	WIRE CLIP	1	CW0812847
E12	NAMEPLATE SWITCH	1	CW1229183
E13	FAN MOTOR	1	CW0960018
E14	WIRE HARNESS FAN MOTOR	1	CW0961136
F1	BOTTOM FRAME ASSÅfY	1	CW0961477
F1-1	SERVICING COVER (BOTTOM)	1	CW1042843
F1-2	LOCK PLATE REF. PIPING	1	CW0961143
F2	SIDE PLATE (RIGHT)	1	CW1032644
F3	LEFT COVER EVAPORATOR	1	CW0839619
F4	FRONT GRILLE ASSÅfY	1	CW1224683
F4-1	FRONT PANEL	1	CW1224690
F4-2	SMOKE PLATE SIGNAL RECEIVER	1	CW0840758
F4-3	LENS LIGHT EMITED DIODE	1	CW0840758
F4-4	HINGE LOCK	1	CW0949718
F5	NAME PLATE DISPLAY	1	CW1224676
F6	SCREW COVER (WHITE)	2	CW0839594
F7	SEAL PLATE EVAPORATOR	1	CW0839587
F8	NAME PLATE MODEL No.	1	CW1224854
G1	DRAIN HOSE	1	CW0663292
K1	OPERATION MANUAL	1	CW1224847
K2	REMOTE CONTROLLER ASSÅfY	1	CW1224722
K2-1	BATTERY COVER	1	CW1190540
K2-2	COVER REMOTE CONTROLLER	1	CW1190557
K3	HOLDER REMOTE CONTROLLER	1	CW1190494
K4	BATTERY KIT	1	CW0292380
K5	SCREW KIT	1	CW0952079
K6	INSULATION TAPE	1	CW0819576
K7	MOUNTING PLATE	1	CW0836805
K8	STATICAL FILTER KIT	1	CW0941699
K8-1	STATICAL FILTER	2	CW0819552

13.3. CS-MC180AKH

Ref. No.	Part Name & Description	Qty.	Part No.
B1	EVAPORATOR ASSÅfY	1	CW1015238
B1-1	UNION JOINT	1	CW0202262
B1-2	UNION JOINT	1	CW257589
B1-3	PUTTY	1	CW1069071
B2	GROUNDING TIP (W/WASHER)	1	CW0985947
B3	CLAMP THERMISTOR	1	CW641900
B4	DRIP PROOF COVER	1	CW0949547
B5	TOP SEAL PLATE EVAPORATOR	1	CW0949770
C1	FAN ROTOR ASSÅfY	1	CW0935872
C1-1	HEX. SOCKET SCREW	1	CW0516055
C2	FAN BEARING ASSÅfY	1	CW0379403
C3	DRAIN PAN ASSÅfY	1	CW1224892
C3-1	HORIZONTAL VANE ASSÅfY	1	CW1103940
C3-1-1	DIFFUSER ASSÅfY	1	CW1224753
C3-2	DIFFUSER ASSÅfY	1	CW1224753
C3-2-1	ROD HORIZONTAL VANE	1	CW1112742
C3-3	SUPPORTER	1	CW1103957
C3-5	BEARING DIFFUSER ASSÅfY	3	CW0949958
C3-6	VERTICAL VANE	16	CW1042898
C3-7	CONNECTING BAR VERTICAL VANE	2	CW0949840
C3-8	KNOB VERTICAL VANE	2	CW0949910
C3-9	VERTICAL VANE (LOCK)	1	CW1103964
C3-10	GEAR BOX ASSÅfY	1	CW0949989
C3-10-1	STEPPING MOTOR	1	CW0941675
C3-11	LINK VERTICAL VANE	2	CW0949864
C3-12	DRAIN PLUG	1	CW0662282
C3-13	HEAT INSULATION COVER (RIGHT)	1	CW1227651
C3-14	HEAT INSULATION COVER (LEFT)	1	CW1227644
C4	AIR FILTER	2	CW1001176
E1	SWITCH BOX	1	CW0936945
E2	SWITCH BOX	1	CW0936945
E2-1	THERMISTOR	1	CW1213715
E3	PRINTED CIRCUIT (POWER UNIT)	1	CW1190470
E4	COVER SWITCH BOX	1	CW0949561
E5	COVER PILOT LAMP	1	CW0949631
E6	PRINTED CIRCUIT (ANNUNCIATOR)	1	CW0949523
E6-1	THERMISTOR	1	CW1052097
E7	TERMINAL BLOCK	1	CW1032651
E8	WIRE CLIP	1	CW0812847
E9	NAMEPLATE SWITCH	1	CW1229190
E10	GROUNDING WIRE	1	CW1200238
E11	SHELTER SWITCH BOX (1)	1	CW1200221
E12	SHELTER SWITCH BOX (2)	1	CW0950561
E13	DRIP PROOF COVER EVAPORATOR	1	CW0949617
E14	FAN MOTOR	1	CW1176429
F1	BOTTOM FRAME	1	CW0936318
F1-1	SERVICING COVER (BOTTOM)	1	CW1042843
F2	SIDE PLATE ASSfY (RIGHT)	1	CW1042850
F3	SET PLATE EVAPORATOR	1	CW0949662
F4	CLAMP REF. PIPING	1	CW0949679
F5	FRONT GRILLE ASSÅfY	1	CW1229208
F5-1	FRONT PANEL	1	CW1224784
F5-2	SERVICING COVER	1	CW0937157
F5-3	HINGE LOCK	1	CW0949718

Ref. No.	Part Name & Description	Qty.	Part No.
F5-4	RUNNING SWITCH	1	CW0949725
F5-5	LENS PILOT LAMP	1	CW0949732
F5-6	SCREW COVER (ALMOND)	1	CW0949749
F5-7	NAME PLATE DISPLAY	1	CW1224791
F6	NAME PLATE MODEL No.	1	CW1224924
G1	DRAIN HOSE	1	CW0949787
K1	OPERATION MANUAL	1	CW1224847
K2	REMOTE CONTROLLER ASSÅfY	1	CW1224722
K2-1	BATTERY COVER	1	CW1190540
K2-2	COVER REMOTE CONTROLLER	1	CW1190557
K3	HOLDER REMOTE CONTROLLER	1	CW1190494
K4	BATTERY KIT	1	CW0292380
K5	SCREW KIT	1	CW0959164
K6	INSULATION TAPE	1	CW0819576
K7	MOUNTING PLATE	1	CW1149845
K8	STATICAL FILTER KIT	1	CW0941699
K8-1	STATICAL FILTER	2	CW0819552

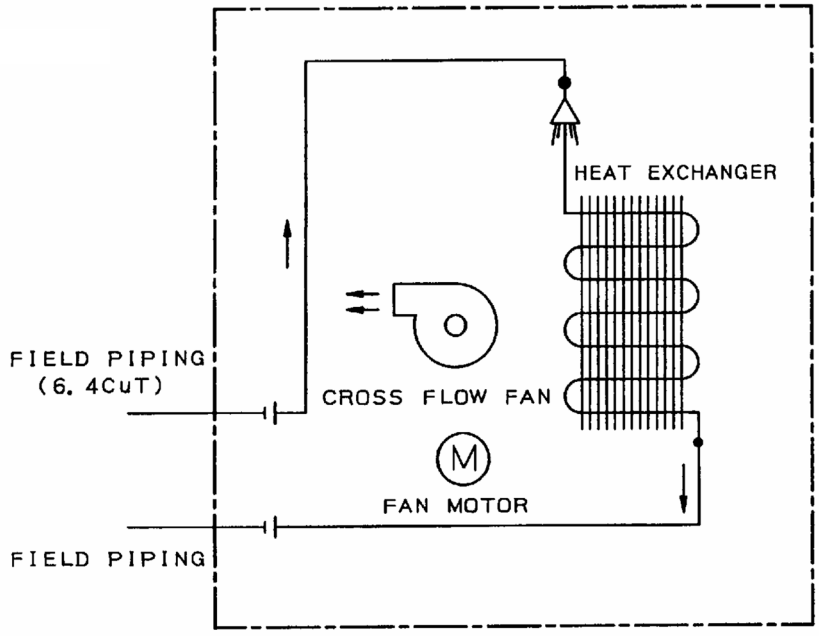
13.4. CU-4MC200AKH

Ref. No.	Part Name & Description	Qty.	Part No.
A1	COMPRESSOR (WIT HACCMULATOR)	1	CW0346403
A2	SPRING HOLDER (1)	3	CW0960397
A3	SPRING HOLDER (2)	3	CW390215
A4	SPRING COMPRESSOR	3	CW390208
A5	NUT WITH WASHER	3	CW390214
A6	RUBBER BUSH LEAD WIRE	1	CW0401393
A7	TERMINAL COVER	1	CW1185555
A8	RETAINER OVER-LOAD RELAY	1	CW380620
A9	NOISE ABSORBER COMPRESSOR	1	CW951073
A10	NOISE ABSORBER COMPRESSOR	1	CW951074
B1	CROSS-FIN CONDENSER ASSÅfY	1	CW0909260
B2	BODY MOTORIZED VALVE	4	CW0726148
B3	LOW PRESSURE CONTROL VALVE	1	CW0700975
B4	STOP VALVE (GAS LINE)	1	CW0402257
B5	STOP VALVE (LIQUID LINE)	1	CW0402240
B6	ACCUMULATOR ASSÅfY	1	CW210204
B7	CAP STOP VALVE	1	CW0079905
B8	CAP STOP VALVE	1	CW0079936
B9	HALF UNION JOINT	4	CW257586
B10	HALF UNION JOINT	1	CW257587
B11	HALF UNION JOINT	1	CW252012
B12	HALF UNION JOINT	1	CW257588
B13	RETAINER UNION JOINT	4	CW380080
B14	RETAINER UNION JOINT	1	CW380013
B15	RETAINER UNION JOINT	1	CW383553
B16	RETAINER UNION JOINT	2	CW380012
B17	FLARE NUT	4	CW0959924
B18	FLARE NUT	1	CW0959816
B19	FLARE NUT	1	CW0137856
B20	FLARE NUT	2	CW8889709
B21	BLIND CAP FLARE NUT	4	CW250201
B22	BLIND CAP FLARE NUT	1	CW250202

Ref. No.	Part Name & Description	Qty.	Part No.
B23	BLIND CAP FLARE NUT	1	CW250203
B24	BLIND CAP FLARE NUT	2	CW250204
B25	SERVICING PORT	1	CW291938
B26	FLARE NUT	1	CW1198474
B27	STRAINER	4	CW0602963
B28	INSULATION COVER ACCUMULATOR	1	CW962007
C1	FAN BLADE	1	CW0566834
C2	LOCK NUT FAN	1	CW847003
C3	AIR DISCHARGE GRILLE	1	CW320002
C4	GUARD NET AIR SUCTION SIDE	1	CW0349008
C5	GUARD NET AIR SUCTION (2)	1	CW321001
E1	SWITCH BOX	1	CW0387048
E2	PRINTED CIRCUIT	1	CW0818535
E2-1	FUSE	1	CW0509002
E3	WIRE HARNESS	1	CW1224861
E4	REGULATOR BOARD	1	CW699579
E5	RUNNING CAPACITOR COMPRESSOR	1	CW0678890
E6	RUNNING CAPACITOR FAN MOTOR	1	CW0570143
E7	CLAMP CAPACITOR	1	CW980726
E8	MAGNETIC SWITCH	1	CW0141552
E9	SELENIC RECTIFIER	1	CW698901
E10	TRANSFORMER	1	CW681009
E11	TERMINAL BLOCK	1	CW661229
E12	TERMINAL BLOCK	1	CW1054651
E13	COIL MOTORIZED VALVE	4	CW296866
E14	OVER-LOAD RELAY	1	CW622418
E15	CLAMP POWER WIRE	1	CW981606
E16	FAN MOTOR	1	CW0688107
E18	LOCKING SUPPORT	11	CW380401
E19	SURGE ABSORBER	1	CW0299691
E20	CLAMP WIRE HARNESS	1	CW980722
E21	FUSE	1	CW0509002
E22	FUSE HOLDER	1	CW0492483
F1	BOTTOM FRAME ASSÅfY	1	CW308951
F2	BASE PLATE REF. PIPING	1	CW0228745
F3	ANCHOR PLATE	4	CW383005
F4	PARTITION PLATE	1	CW0595128
F5	MOTOR BASE	1	CW414001
F6	FRONT PLATE	1	CW1012462
F7	SIDE PLATE FRONT SIDE	1	CW0242765
F8	SIDE PLATE (BACK)	1	CW0595104
F9	SERVICING PLATE ASSÅfY	1	CW346002
F10	SUPPORTER	1	CW383007
F11	FRAME	1	CW383008
F12	COVER PIPING BASE	1	CW383009
F13	SET PLATE CONDENSER	1	CW0909347
F15	TOP PLATE ASSÅfY	1	CW0909330
F16	HANDLE	2	CW353609
F17	TRUSS HEAD TAPPING SCREW	49	CW0082033
K1	EMBLEM	1	CW1224878
K2	REDUCING JOINT ASSÅfY	1	CW0772040
K2-1	PACKING UNION JOINT	2	CW257553
K2-2	GASKET REDUCING JOINT	1	CW257712
K2-3	GASKET REDUCING JOINT	2	CW257555

Ref. No.	Part Name & Description	Qty.	Part No.
K2-4	GASKET REDUCING JOINT	1	CW257711
K2-5	REDUCING JOINT	2	CW257503
K2-6	GASKET FLARE NUT	2	CW257511
K3	SUBSIDIARY DRAIN PAN ASSÅfY	1	CW0769138
K4	SCREW	1	CW0761165
K5	SET PLATE DRAIN PAN	1	CW0769082
K6	DRAIN CAP	2	CW0213750
K7	DRAIN JOINT	1	CW0589565

CS-MC180AKH



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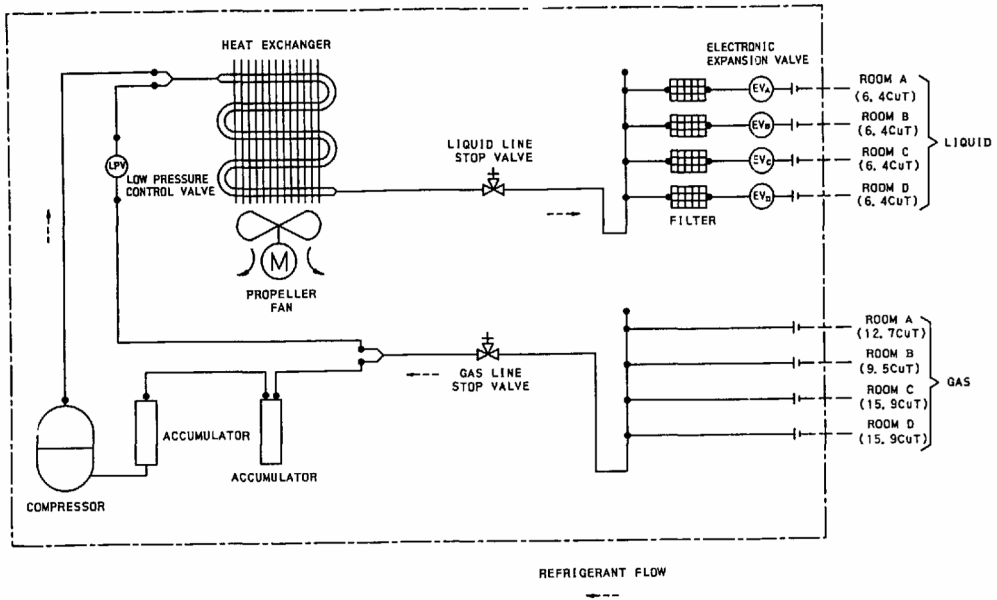
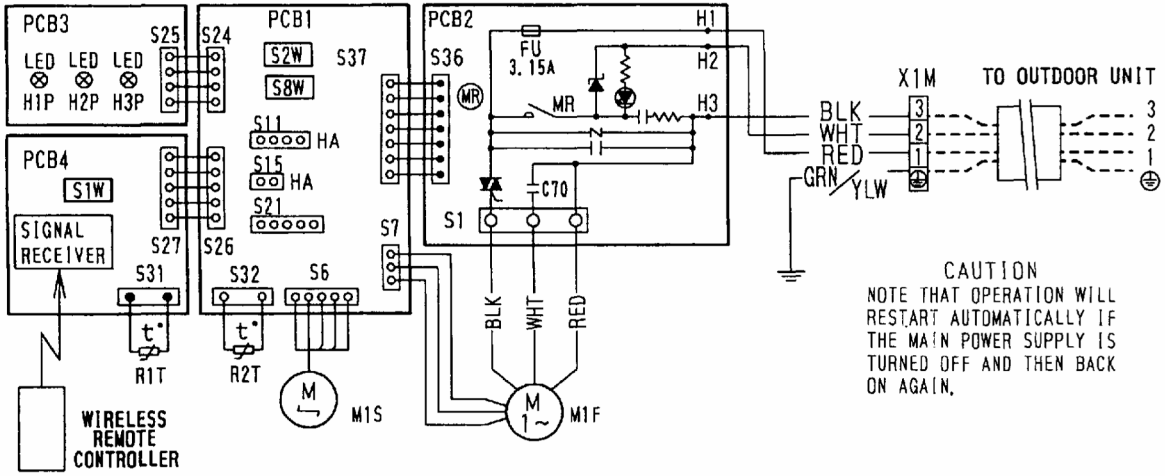
CU-4MC200AKH



DW725-756

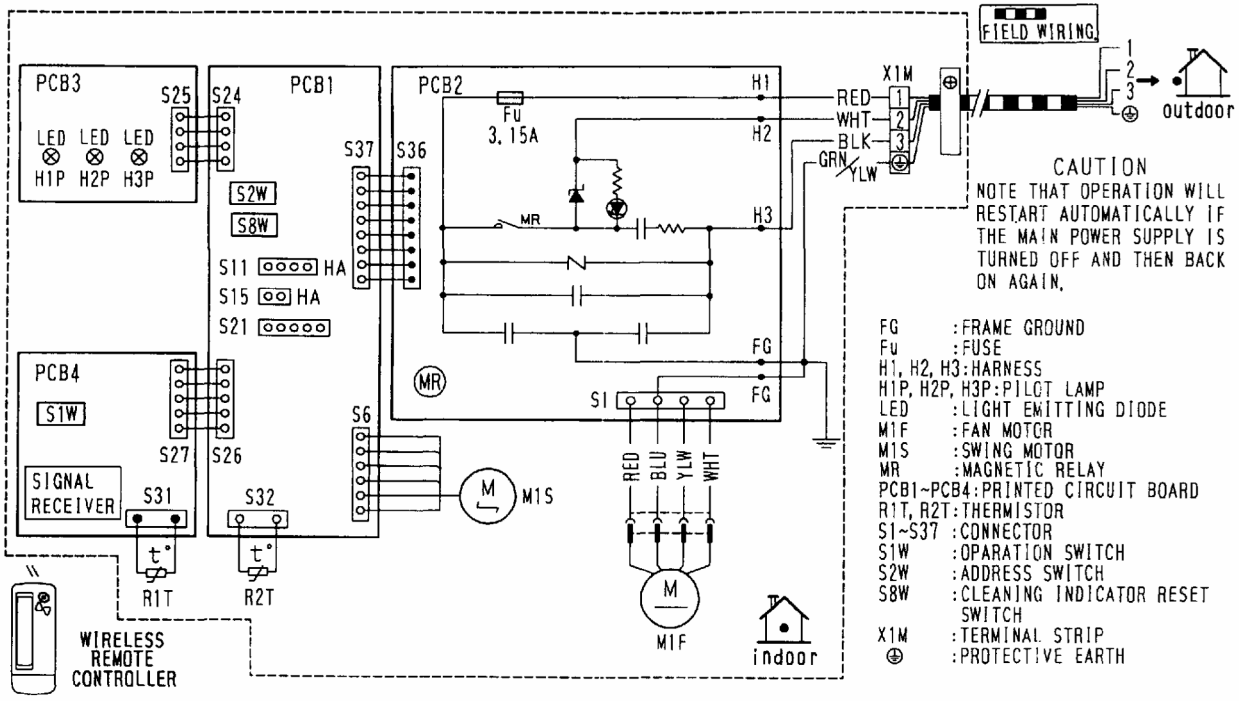
CS-MC90AKH
CS-MC120AKH



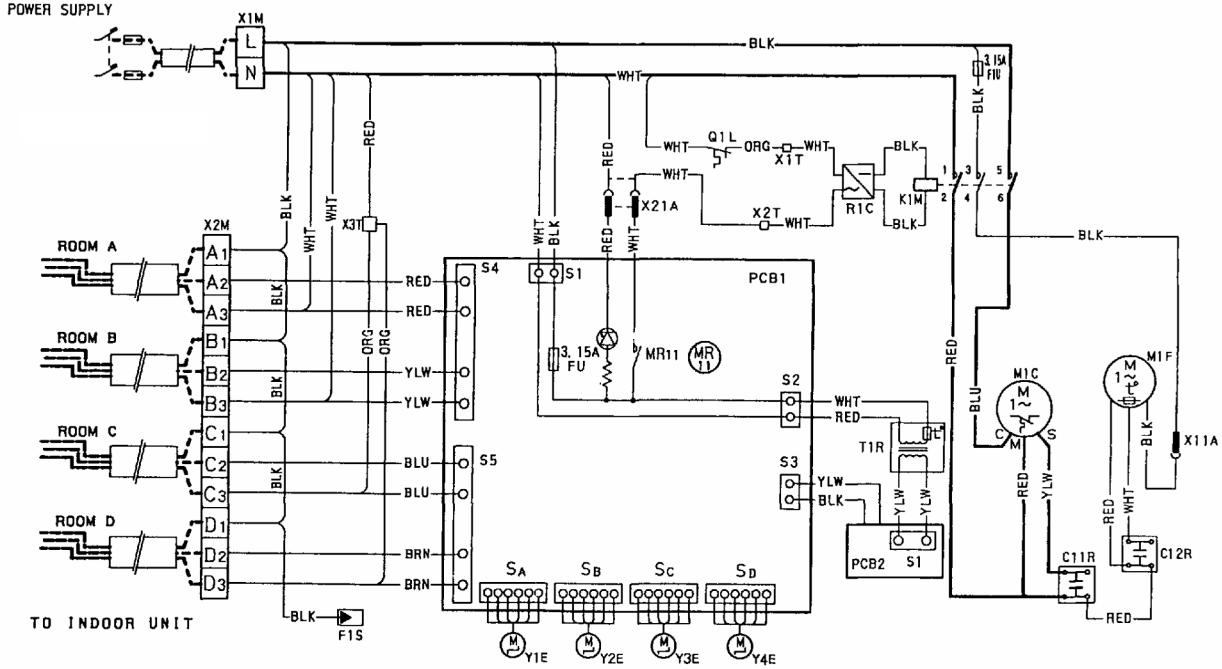
C70 :RUNNING CAPACITOR
FU :FUSE
H1P~H3P:PILOT LAMP
M1F :FAN MOTOR
M1S :SWING MOTOR
MR :MAGNETIC RELAY
PCB1~PCB4:PRINTED CIRCUIT BOARD

R1T, R2T:THERMISTOR
S1~S37 :CONNECTOR
S1W :OPERATION SWITCH
S2W :ADDRESS SWITCH
S8W :CLEANING INDICATOR RESET SWITCH
X1M :TERMINAL STRIP

CS-MC180AKH


PCB3
S25
S24
PCB1
S37
S36
PCB2
LED LED LED
H1P H2P H3P
S2W
S8W
S11 HA
S15 HA
S21
Fu
3.15A
MR
H1
H2
H3
FG
FG
S1
X1M
RED
WHT
BLK
GRN/YLW
FIELD WIRING
1
2
3
outdoor
CAUTION
NOTE THAT OPERATION WILL RESTART AUTOMATICALLY IF THE MAIN POWER SUPPLY IS TURNED OFF AND THEN BACK ON AGAIN.
PCB4
S1W
SIGNAL RECEIVER
S31
S27
S26
S32
S6
M1S
RED
BLU
YLW
WHT
M1F
R1T
R2T
WIRELESS REMOTE CONTROLLER
indoor
FG :FRAME GROUND
Fu :FUSE
H1, H2, H3:HARNESS
H1P, H2P, H3P:PILOT LAMP
LED :LIGHT EMITTING DIODE
M1F :FAN MOTOR
M1S :SWING MOTOR
MR :MAGNETIC RELAY
PCB1~PCB4:PRINTED CIRCUIT BOARD
R1T, R2T:THERMISTOR
S1~S37 :CONNECTOR
S1W :OPARATION SWITCH
S2W :ADDRESS SWITCH
S8W :CLEANING INDICATOR RESET SWITCH
X1M :TERMINAL STRIP
⏚ :PROTECTIVE EARTH

CU-4MC200AKH



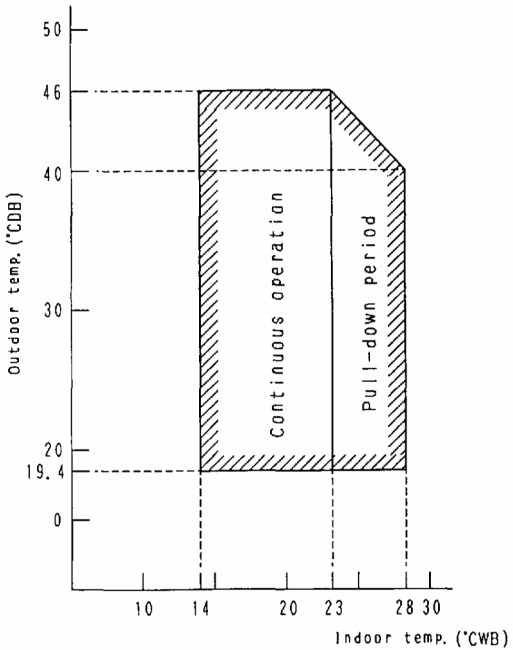
Q1L: OVERLOAD PROTECTOR
R1C: RECTIFIER
C11R, C12R: RUNNING CAPACITOR
FU, F1U: FUSE
MR: MAGNETIC RELAY
PCB1, 2: PRINTED CIRCUIT BOARD

K1M: COMPRESSOR RELAY
M1C: COMPRESSOR MOTOR
M1F: FAN MOTOR
T1R: TRANSFORMER
F1S: SURGE ARRESTER

Y1E~Y4E: ELECTRONIC EXPANSION VALVE
X1M, X2M: TERMINAL STRIP
X11A, X21A, S1~5, SA~SD: CONNECTOR
X1T~X3T: INDICATES A CLOSED TERMINAL CONNECTOR
L: LIVE
N: NEUTRAL

NOTE
REFER TO THE NAMEPLATE FOR THE POWER REQUIREMENTS.

CU-4MC200AKH



Notes:
The graphs are based on the following conditions.

- Equivalent piping length 5m
- Level difference 0m
- Air flow rate High

ENGLISH

National
ROOM AIR CONDITIONERS

INSTALLATION INSTRUCTION

INDOOR	OUTDOOR
CS-MC90AKH	CU-4MC200AKH
CS-MC120AKH	CU-4MK260AKH
CS-MC180AKH	
CS-MK90AKH	
CS-MK120AKH	
CS-MK180AKH	

SAFETY PRECAUTIONS

- Read these SAFETY PRECAUTIONS carefully to ensure correct installation.
- This manual classifies the precautions into WARNINGS and CAUTIONS.
  Be sure to follow all the precautions below: they are all important for ensuring safety.

⚠ WARNINGS	Failure to follow any of WARNING is likely to result in such grave consequences as death or serious injury.
⚠ CAUTIONS	Failure to follow any of CAUTION may in some cases result in grave consequences.

- The following safety symbols are used throughout this manual:

❗	Be sure to observe this instruction.	⏚	Be sure to establish an earth connection.	⃠	Never attempt.

- After completing installation, test the unit to check for installation errors. Give the user adequate instructions concerning the use and cleaning of the unit according to the Operation Manual.

⚠ WARNINGS

- Installation should be left to the dealer or another professional.
  Improper installation may cause water leakage, electrical shock, or fire.
- Install the air conditioner according to the instructions given in this manual.
  Incomplete installation may cause water leakage, electrical shock, or fire.
- Be sure to use the supplied or specified installation parts.
  Use of other parts may cause the unit to come to lose, water leakage, electrical shock, or fire.
- Install the air conditioner on a solid base that can support the unit's weight.
  An inadequate base or incomplete installation may cause injury in the event the unit falls off the base.
- Electrical work should be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice. Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
- Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
- For wiring, use a cable long enough to cover the entire distance with no connection.
  Do not use an extension cord. Do not put other loads on the power supply, use a dedicated power circuit.
  (Failure to do so may cause abnormal heat, electric shock or fire.)
- Use the specified types of wires for electrical connections between the indoor and outdoor units.
  Firmly clamp the interconnecting wires so their terminals receive no external stresses. Incomplete connections or clamping may cause terminal overheating or fire.
- After connecting interconnecting and supply wiring be sure to shape the cables so that they do not put undue force on the electrical covers or panels. Install covers over the wires. Incomplete cover installation may cause terminal overheating, electrical shock, or fire.
- When installing or relocating the system, be sure to keep the refrigerant circuit free from substances other than the specified refrigerant (R22), such as air. (Any presence of air or other foreign substance in the refrigerant circuit causes an abnormal pressure rise or rupture, resulting in injury.)
- The unit is out of reach of children-at least 1.8m above the floor.
- If any refrigerant has leaked out during the installation work, ventilate the room. ❗
  (The refrigerant produces a toxic gas if exposed to flames.)
- After all installation is complete, check to make sure that no refrigerant is leaking out. ❗
  (The refrigerant produces a toxic gas if exposed to flames.)
- Be sure to establish an earth. Do not earth the unit to a utility pipe, arrester, or telephone earth. ⏚
  Incomplete earth may cause electrical shock. A high surge current from lightning or other sources may cause damage to the air conditioner.
- An earth leakage circuit breaker may be required depending on site condition to prevent electrical shock.
  Failure to do so may cause electrical shock.

⚠ CAUTIONS

- Do not install the air conditioner in a place where there is danger of exposure to inflammable gas leakage. ⃠
  If the gas leaks and builds up around the unit, it may catch fire.
- Establish drain piping according to the instructions of this manual.
  Inadequate piping may cause flooding.

ACCESSORIES

Ⓐ Mounting plate		1	Ⓔ Remote control holder	1	Ⓙ Insulation tape	1
Ⓑ Mounting plate fixing screw M4 X 25L	Class 90/120	6	Ⓕ Fixing screw for remote control holder M3 X 20L	2	Ⓚ Operation manual	1
	Class 180	10				
Ⓒ Air purifying filter		2	Ⓖ AAA dry-cell batteries	2	Ⓛ Installation manual	1
Ⓓ Wireless remote controller		1	Ⓗ Indoor unit fixing screw M4 X 12L	2		

CHOOSING A SITE

- Before choosing the installation site, obtain user approval.

Indoor unit

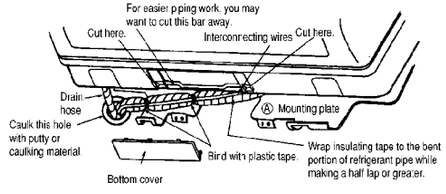
The indoor unit should be sited in a place where:
- the restrictions on installation specified in the indoor unit installation drawings are met,
- both air intake and exhaust have clear paths met,
- the unit is not in the path of direct sunlight,
- the unit is away from the source of heat or steam,
- there is no source of machine oil vapour (this may shorten indoor unit life),
- cool air is circulated throughout the room,
- the unit is away from electronic ignition type fluorescent lamps (inverter or rapid start type) as they may shorten the remote control range,
- the unit is at least 1 metre away from any television or radio set (unit may cause interference with the picture or sound).

Wireless Remote Controller

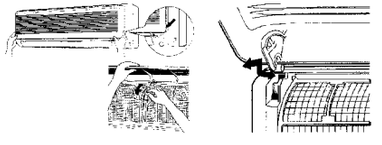
- Turn on all the fluorescent lamps in the room, if any, and find the site where remote control signals are properly received by the indoor unit (within 7 metres).

INSTALLATION TIPS

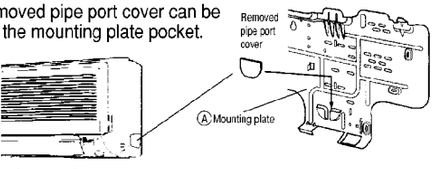
* The pipe port for left-side piping or in-wall piping can be accessed by removing the bottom cover from the bottom frame.


For easier piping work, you may want to cut this bar away.
Cut here.
Interconnecting wires
Cut here.
Drain hose
Ⓐ Mounting plate
Caulk this hole with putty or caulking material
Bind with plastic tape.
Wrap insulating tape to the bent portion of refrigerant pipe while making a half lap or greater.
Bottom cover

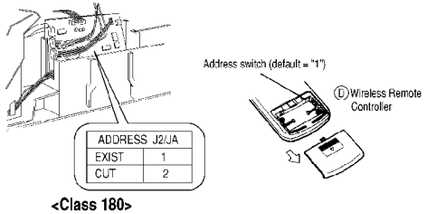
* Indoor unit's lift from mounting plate surface is eliminated by screwing the bottom frame to the mounting plate.
* Indoor unit's terminal block can be accessed for wiring just by removing the front grille (without having to remove the front panel).



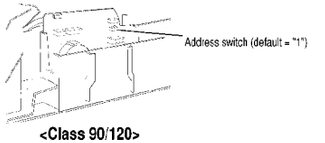
* The removed pipe port cover can be kept in the mounting plate pocket.



* Be sure to use the vacuum pump for air purging.
* When two indoor units are installed in one room, the two wireless remote controllers can be easily set for different addresses.



<Class 180>



<Class 90/120>

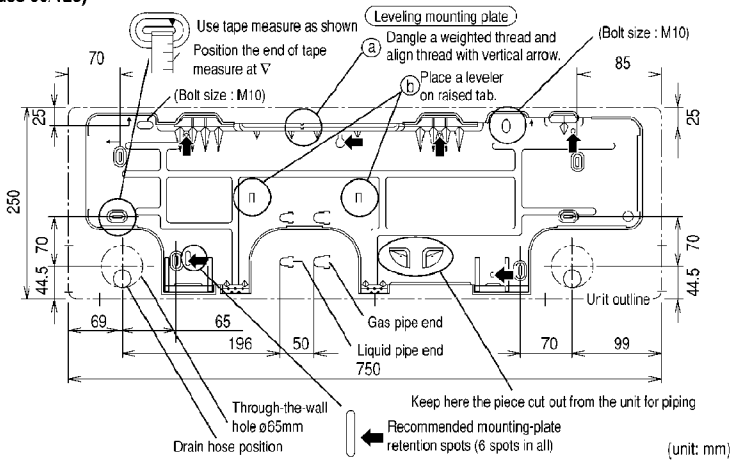
INDOOR UNIT

1 INSTALLING THE MOUNTING PLATE

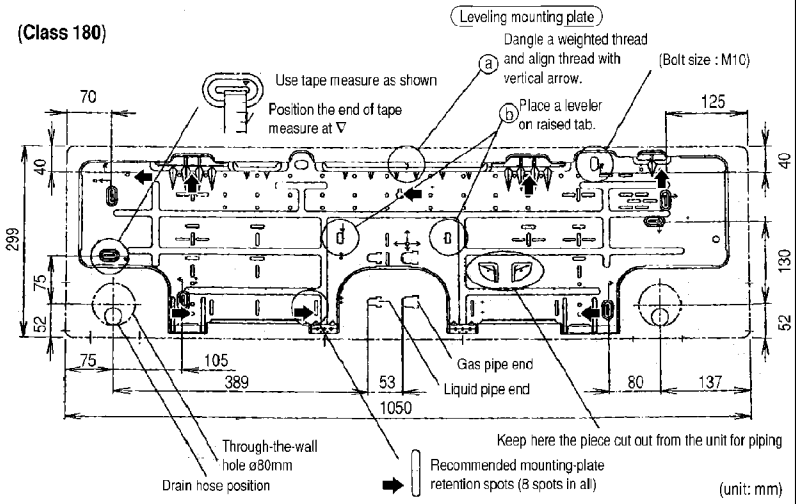
• The mounting plate should be installed on a wall which can support the weight of the indoor unit.
(1) Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the boring points on the wall.
(2) Secure the mounting plate to the wall with screws.

Recommended mounting-plate retention spots and Dimensions

(Class 90/120)



(Class 180)

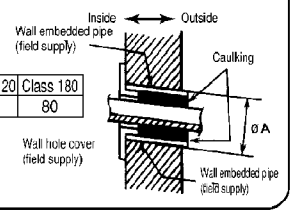


2 BORING A WALL HOLE AND INSTALLING WALL EMBEDDED PIPE

• For walls containing metal frame or metal board, be sure to use a wall embedded pipe and wall cover in the feed-through hole to prevent possible heat, electrical shock, or fire.
• Be sure to caulk the gaps around the pipes with caulking material to prevent water leakage.

(1) Bore a feed-through hole of A mm in the wall so it has a down slope toward the outside.
(2) Insert a wall pipe into the hole.
(3) Insert a wall cover into wall pipe.
(4) After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.

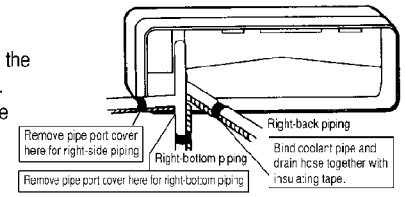
	Class 90/120	Class 180
A	65	80



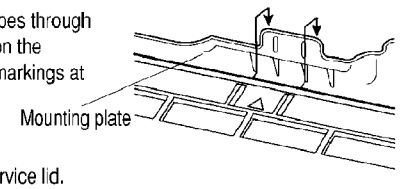
3 INSTALLING INDOOR UNIT

Right-Side, Right-Back, or Right-Bottom Piping

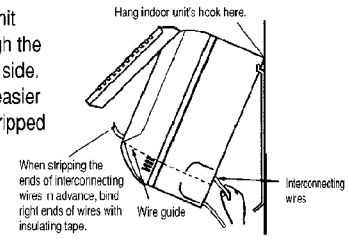
(1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
(2) Wrap the refrigerant pipes and drain hose together with insulation tape.


Remove pipe port cover here for right-side piping
Right-bottom pping
Right-back piping
Bind coolant pipe and drain hose together with insulating tape.
Remove pipe port cover here for right-bottom piping

(3) Pass the drain hose and refrigerant pipes through the wall hole, then set the indoor unit on the mounting plate hooks by using the △ markings at the top of the indoor unit as a guide.



(4) Open the front grille, then open the service lid.
(5) Pass the interconnecting wires from the outdoor unit through the feed-through wall hole and then through the back of the indoor unit. Pull them through the front side. Bend the ends of tie wires upward in advance for easier work. (If the interconnecting wire ends are to be stripped first, bundle wire ends with adhesive tape.)
(6) Press the indoor unit's bottom panel with both hands to set it on the mounting plate hooks. Make sure the wires do not catch on the edge of the indoor unit.

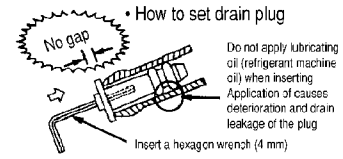

Hang indoor unit's hook here.
When stripping the ends of interconnecting wires in advance, bind right ends of wires with insulating tape.
Wire guide
Interconnecting wires

Left-Side, Left-Back, or Left Bottom Piping

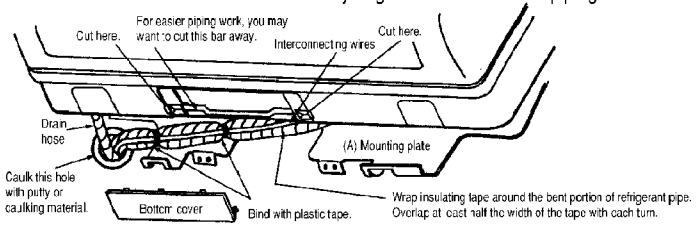
(1) Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.

Remove pipe port cover here for left-side piping
Left-side piping
Left-back piping
Remove pipe port cover here for left-bottom piping
Left-bottom piping

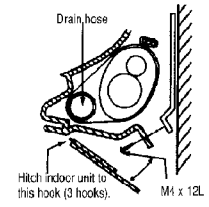
(2) Be sure to connect the drain hose to the drain port in place of a drain plug.


• How to set drain plug
No gap
Do not apply lubricating oil (refrigerant machine oil) when inserting Application of causes deterioration and drain leakage of the plug
Insert a hexagon wrench (4 mm)

(3) Shape the refrigerant pipe along the pipe path marking on the mounting plate.
(4) Pass drain hose and refrigerant pipes through the wall hole, then set the indoor unit on mounting plate hooks, using the △ markings at the top of indoor unit as a guide.
(5) Pull in the interconnecting wires.
(6) Remove the bottom cover and cut the bar away to gain better access for piping work.

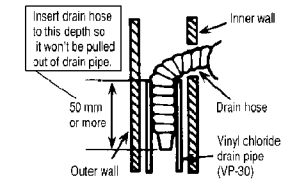

Cut here.
For easier piping work, you may want to cut this bar away.
Interconnecting wires
Cut here.
Drain hose
(A) Mounting plate
Caulk this hole with putty or caulking material.
Bottom cover
Bind with plastic tape.
Wrap insulating tape around the bent portion of refrigerant pipe. Overlap at east half the width of the tape with each turn.

(7) Wrap the refrigerant pipes and drain hose together with insulation tape.
(8) While exercising care so that the interconnecting wires do not catch indoor unit, press the bottom edge of indoor unit with both hands until it is firmly caught by the mounting plate hooks. Secure indoor unit to the mounting plate with screws (M4 x 12L).



Wall Embedded Piping

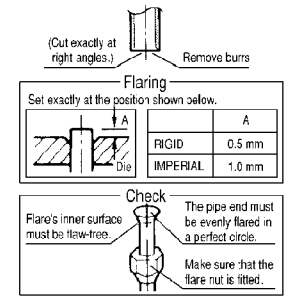
Follow the instructions given under **Left-Side, Left-Back, or Left Bottom Piping**.
(1) Insert the drain hose to this depth so it won't be pulled out of the drain pipe.


Insert drain hose to this depth so it won't be pulled out of drain pipe.
Inner wall
50 mm or more
Drain hose
Vinyl chloride drain pipe (VP-30)
Outer wall

4 FLARING THE PIPE END

1. Cut the pipe end with a pipe cutter.
2. Remove burrs with the cut surface facing downward so that the chips do not enter the pipe.
3. Put the flare nut on the pipe.
4. Flare the pipe.
5. Check that the flaring is properly made.

⚠ Warning
Incomplete flaring may cause refrigerant gas leakage.


(Cut exactly at right angles.)
Remove burrs
Flaring
Set exactly at the position shown below.
A
Die
RIGID 0.5 mm
IMPERIAL 1.0 mm
Check
Flare's inner surface must be flaw-free.
The pipe end must be evenly flared in a perfect circle.
Make sure that the flare nut is fitted.

5 REFRIGERANT PIPING

1. Align the centres of both flares and tighten the flare nuts 3 or 4 turns by hand. Then tighten them fully with the torque wrenches.
   • Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and escaping gas.
2. To prevent gas leakage, apply refrigeration machine oil on both inner and outer surfaces of the flare.

Flare nut tightening torque			
Gas side			Liquid side
3/8 inch	1/2 inch	5/8 inch	1/4 inch
32.7~39.9 N•m (333~407 kgf•cm)	49.5~60.3 N•m (505~615 kgf•cm)	61.8~75.4 N•m (630~769 kgf•cm)	14.2~17.2 N•m (144~175 kgf•cm)

Valve cap tightening torque			
Gas side			Liquid side
3/8 inch	1/2 inch	5/8 inch	1/4 inch
21.6~27.4 N•m (220~280 kgf•cm)	26.5~32.3 N•m (270~330 kgf•cm)	48.1~59.7 N•m (490~610 kgf•cm)	21.6~27.4 N•m (220~280 kgf•cm)

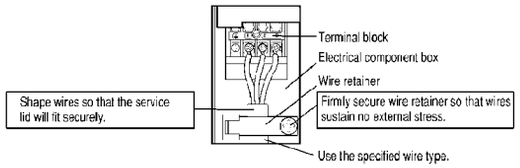
Service port cap tightening torque	10.8~14.7 N•m (110~150 kgf•cm)

INDOOR UNIT

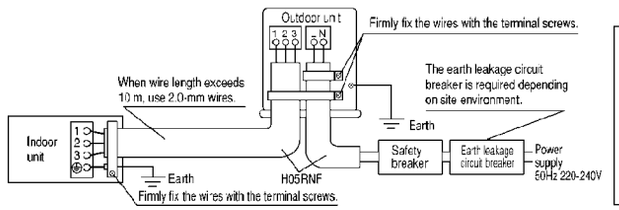
6 WIRING

With a Multi indoor unit, install as described in the installation manual supplied with the Multi outdoor unit.

(1) Strip wire ends (10 ~ 15 mm).
(2) Match wire colours with terminal numbers on indoor and outdoor units' terminal blocks and firmly screw wires to the corresponding terminals.
(3) Connect the earth wires to the corresponding terminals.


Terminal block
Electrical component box
Wire retainer
Shape wires so that the service lid will fit securely.
Firmly secure wire retainer so that wires sustain no external stress.
Use the specified wire type.

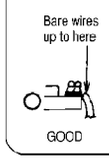
(4) Pull wires to make sure that they are securely latched up, then retain wires with wire retainer.
(5) Shape the wires so that the service lid fits securely, then close service lid.



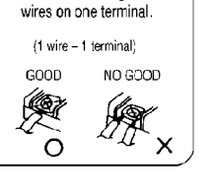
⚠ Warning
Do not use tapped wires,stand wires, extensioncords, or starbust connections. as they may cause overheating, electrical shock,or fire.

Warning! Never use short cables for connecting end of conductor to each other.

- How to tighten the screws on the terminal block.
  - Bare the ends of the electric wires.

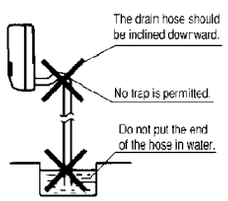


  - After retaining the wires, check that all the terminal screws are firmly tightened.
  - Don't connect together two wires on one terminal.

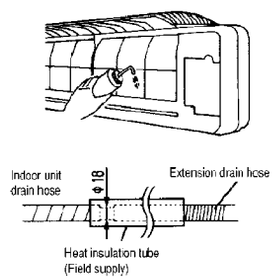


7 DRAIN PIPING

- Connect the drain hose, as described below



- Remove the air filters and pour some water into the drain pan to check the water flows smoothly.



- When drain hose requires extension, obtain an extension hose commercially available.
  Be sure to thermally insulate the indoor section of the extension hose.

- When connecting a rigid polyvinyl chloride pipe (nominal diameter 13 mm) directly to the drain hose attached to the indoor unit as with embedded piping work, use any commercially available drain socket (nominal diameter 13 mm) as a joint.

Φ18
Drain hose supplied with the indoor unit.
Commercially available drain socket (nominal diameter 13 mm)
Commercially available rigid polyvinyl chloride ppe (nominal diameter 13 mm)

TRIAL OPERATION AND TESTING

Trial Operation and Testing

(1) Measure the supply voltage and make sure that it falls in the specified range.
(2) Trial operation should be carried out in either cooling or heating mode.

Select the lowest programmable temperature.
- Trial operation in cooling mode may be disabled depending on the room temperature. Use the remote control for trial operation as described below.

Trial operation from Remote Controller
(1) Press ON/OFF button to turn on the system. (2) Simultaneously press DOWN, UP, and MODE buttons. (3) Press MODE button twice. (" 7" will appear on the display to indicate that Trial Operation mode is selected.) (4) Trial run mode terminates in approx. 30 minutes and switches into normal mode. To quit a trial operation, press ON/OFF button.

- After trial operation is complete, set the temperature to a normal level (26˚ to 28˚C).
- For protection, the unit disables restart operation for 3 minutes after it is turned off.

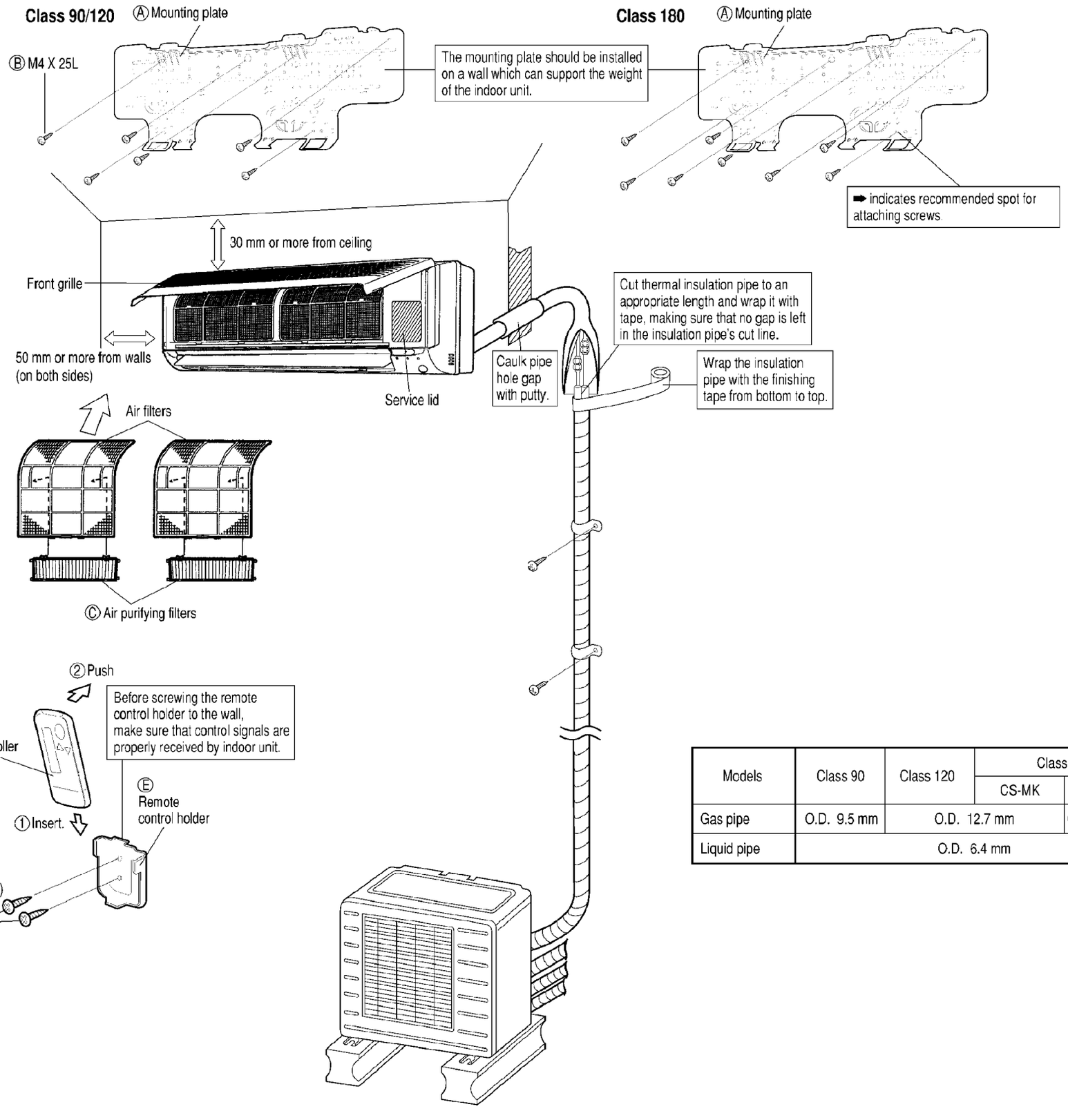
(3) Carry out the test operation in accordance with the Operation Manual to ensure that all functions and parts, such as louver movement, are working properly.
* The air conditioner requires a small amount of power in its standby mode. If the system is not to be used for some time after installation, shut off the circuit breaker to eliminate unnecessary power consumption.
* If the circuit breaker trips to shut off the power to the air conditioner, the system will restore the original operation mode when the circuit breaker is opened again.

Test Items

Test Items	Symptom (diagnostic display on RC)	Check
Indoor and outdoor units are installed properly on solid bases.	Fall, vibration, noise	
No refrigerant gas leaks.	Incomplete cooling/ heating function	
Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.	Water leakage	
Draining line is properly installed.	Water leakage	
System is properly earthed.	Electrical leakage	
The specified wires are used for interconnecting wire connections.	Inoperative or burn damage	
Indoor or outdoor unit's air intake or exhaust has clear path of air. Shut-off valves are opened.	Incomplete cooling/ heating function	
Indoor unit properly receives remote control commands.	Inoperative	

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
Osaka 542-8588, Japan

INDOOR UNIT INSTALLATION DRAWINGS

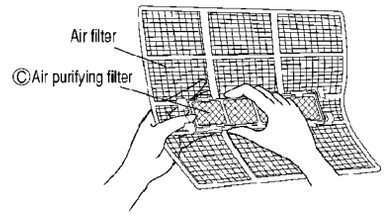

Class 90/120
Ⓐ Mounting plate
Ⓑ M4 X 25L
The mounting plate should be installed on a wall which can support the weight of the indoor unit.
Class 180
Ⓐ Mounting plate
➡ indicates recommended spot for attaching screws.
30 mm or more from ceiling
Front grille
50 mm or more from walls (on both sides)
Service lid
Caulk pipe hole gap with putty.
Cut thermal insulation pipe to an appropriate length and wrap it with tape, making sure that no gap is left in the insulation pipe's cut line.
Wrap the insulation pipe with the finishing tape from bottom to top.
Air filters
Ⓒ Air purifying filters
② Push
Before screwing the remote control holder to the wall, make sure that control signals are properly received by indoor unit.
Ⓓ Wireless remote controller
Ⓔ Remote control holder
① Insert.
Ⓕ (M3 X 20L)

Outdoor Unit Installation Guidelines

Follow the installation manual supplied to the multi outdoor unit.

Installing Air Purifying Filter

(1) Open front grille.
(2) Remove air filters.
(3) Install air purifying filter into its frame and install it on air filter.
(4) Install air filters on indoor unit.
(5) Stick the Electrostatic Filter Instruction Label on the back of the grille.



Models	Class 90	Class 120	Class 180	
			CS-MK	CS-MC
Gas pipe	O.D. 9.5 mm	O.D. 12.7 mm		O.D. 15.9 mm
Liquid pipe	O.D. 6.4 mm			

Safety Precautions

- Read the following warnings and cautions carefully before operating the system and use it correctly.
- This manual classifies the precautions to the user into two categories on the right. Be sure to follow all as they are all important to ensure safety.
- After reading this manual, keep it in a place easily accessible to the user for future reference.

⚠ **WARNING**	Failure to follow a warning is very likely to result in such grave consequences as death or serious injury.
⚠ **CAUTION**	Failure to follow a caution may result in serious injury or property damage, and in certain conditions, may result in a grave consequence.

⚠ WARNING

Do not attempt to extend the power cord by joining it to another cord, or by using an extension cord. Do not put any other loads on the power supply socket.
Failure to follow this will cause electric shocks, abnormal heating or fire.

Do not damage or attempt to modify the power cord. Do not use the cord in a damaged state or tied in a bundle.
Applying a heavy weight, heat or tension on the power cord will damage it, causing electric shocks or fire.

Do not expose your body to the cool air for a long time; do not cool the room too much.
It will affect your physical conditions and cause health problems.

Do not put a finger, a rod or other objects into the air outlet or inlet.
As the fan is rotating at a high speed, it will cause injury.

Do not attempt to repair, relocate, modify or reinstall the air conditioner by yourself.
Incorrect work will cause electric shocks, fire etc. For repairs and reinstallation, consult the shop where you bought the air conditioner.

If anything abnormal such as a burning smell occurs, stop the operation immediately and turn the breaker OFF.
Continued abnormal operation will cause troubles, electric shocks, fire etc. If anything is abnormal, consult the shop where you bought the air conditioner.

If the air conditioner is not cooling or heating properly, the refrigerant may be leaking, so see the dealer where the unit was purchased. Check with a qualified repairman before attempting any repairs, which might accompany addition of refrigerant.
The refrigerant used in the air conditioner is safe. Although leaks should not occur, if for some reason any refrigerant happens to leak into the room, make sure it does not come in contact with any flame, such as fan heaters, kerosene heaters, or gas ranges, as this may result noxious substances being generated.

⚠ CAUTION

Do not use the air conditioner for preservation purposes.
Do not use it for preserving precision instruments, foods, plants, animals, works of fine arts etc. Performance or quality may deteriorate and animal or plant life may be shorter.

Do not operate the air conditioner with a wet hand.
It may cause an electric shock.

Ventilate the room from time to time.
Be careful especially when using a burning appliance in the same room. Insufficient ventilation may cause shortage of oxygen.

Before cleaning, be sure to stop the operation and turn the breaker OFF.
As a fan is rotating at a high speed, cleaning during operation may cause injury.

After a long use, check the unit stand and fittings for damage.
The unit may drop and cause injury if damage is left unrepaired.

Do not stand or sit on the outdoor unit. Do not place any object on the unit.
The object or the person may fall down or drop, causing injury.

Do not place under the indoor or outdoor unit anything which must be kept away from moisture.
Indoor unit: moisture in the air may condense and drip in certain conditions.
Outdoor unit: during cooling operation, condensation may drip from the piping connections.

Do not wash the unit with water.
It may cause an electric shock.

Do not place a burning appliance in places exposed to the air flow from the unit or under the indoor unit.
It may cause incomplete combustion or deformation of the unit from heat.

Do not expose plants or animals directly to the air flow.
It may cause adverse effects on the plant or the animal.

Do not allow children to mount on the outdoor unit or avoid placing any object on it.
Falling or tumbling may result in injury.

Do not place a vessel containing water on the unit.
Water may penetrate into the unit and degrade electrical insulations, resulting in an electric shock.

Do not connect the air conditioner to a power supply different from the specification.
It may cause troublers or fire.

Do not block air inlets nor outlets.
Impaired air flow may result in insufficient performance or troubles.

Installation

⚠ WARNING

Do not attempt to install the air conditioner by yourself.

Consult the service shop or a qualified technician.

Incorrect work will result in water leakage, electric shocks or fire. For installation, consult the service shop where you bought the unit or a qualified technician.

⚠ CAUTION

The air conditioner must be earthed.

Incomplete earthing may result in electric shocks.
Do not connect the earth line to a gas pipe, water pipe, lightening rod, or a telephone earth line.

Depending on the environment, an earth leakage breaker must be installed.

Lack of an earth leakage breaker may result in electric shocks.

Do not install the air conditioner in places where flammable gas may leak.

If leaked gas should accumulate near the unit, fire may occur.

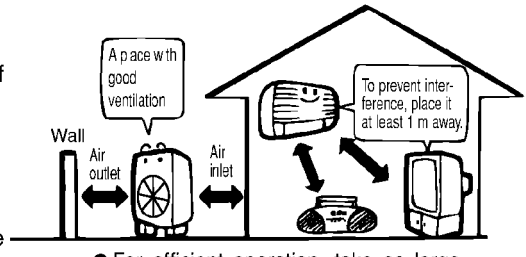
Arrange the drain hose to ensure smooth drainage.

Incomplete drainage may cause wetting of the building, furniture etc.

Installation site

■To install the air conditioner in the following types of environments, consult the shop.
- Places with an oily ambient or where steam or soot occurs.
- Salty environment such as coastal areas.
- Places where sulfide gas occurs such as hot springs.
- Places where snow may block the outdoor unit.

The drain from the outdoor unit must be discharged to a place of good drainage.



- For efficient operation, take as large spaces around the unit as site allows.

Consider nuisance to your neighbours from noises.

■For installation, choose a place as described below.
- A place solid enough to bear the weight of the unit which does not amplify the operation noise or vibration.
- A place from where the air discharged from the outdoor unit or the operation noise will not annoy your neighbours.

Electrical work

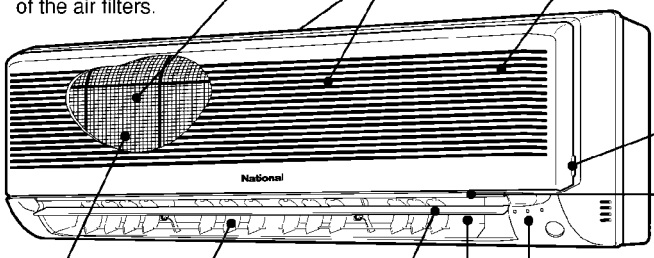
- For power supply, be sure to use a separate power circuit dedicated to the air conditioner.

System relocation

- Relocating the air conditioner requires specialized knowledge and skills. Please consult the shop where you bought the air conditioner if relocation is necessary for moving or remodeling.

Names of Parts

Indoor unit



Air purifying filter
Air purifying filters are attached to the inside of the air filters.

Air inlet

Front grille

Grille tab

Diffuser

Air filter

Louvre (vertical blades)
The louvre is inside of the air outlet.
(See page 8 "Adjusting the Air Flow Direction".)

Flap (Horizontal blade)
(See page 8 "Adjusting the Air Flow Direction".)

Air outlet

Indicator lamps

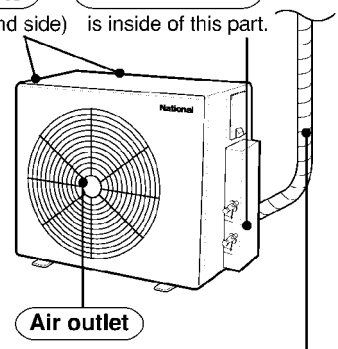
OPERATION lamp (green)

TIMER lamp (yellow)
(See page 9 "Timer Operation".)

CLEANING lamp (red)
Lights up when the air filters need cleaning.
(See page 10 "Care and Cleaning".)

ON/OFF switch

Outdoor unit



Air inlets
(Back and side)

Earth terminal:
is inside of this part.

Air outlet

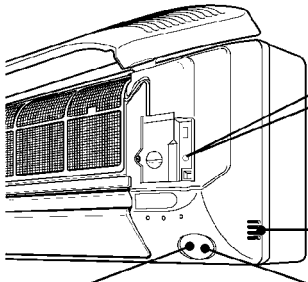
Refrigerant piping and inter-unit cable

Opening the front grille

How to open the front grille: (See page "Care and Cleaning")

⚠ CAUTION

Before opening the grille, be sure to stop the operation and turn the breaker OFF. If the power is on, the fan may rotate inside and may cause injury.



Control panel

CLEANING LAMP RESET

CLEANING lamp reset button
- Push this button to turn the CLEANING lamp off.

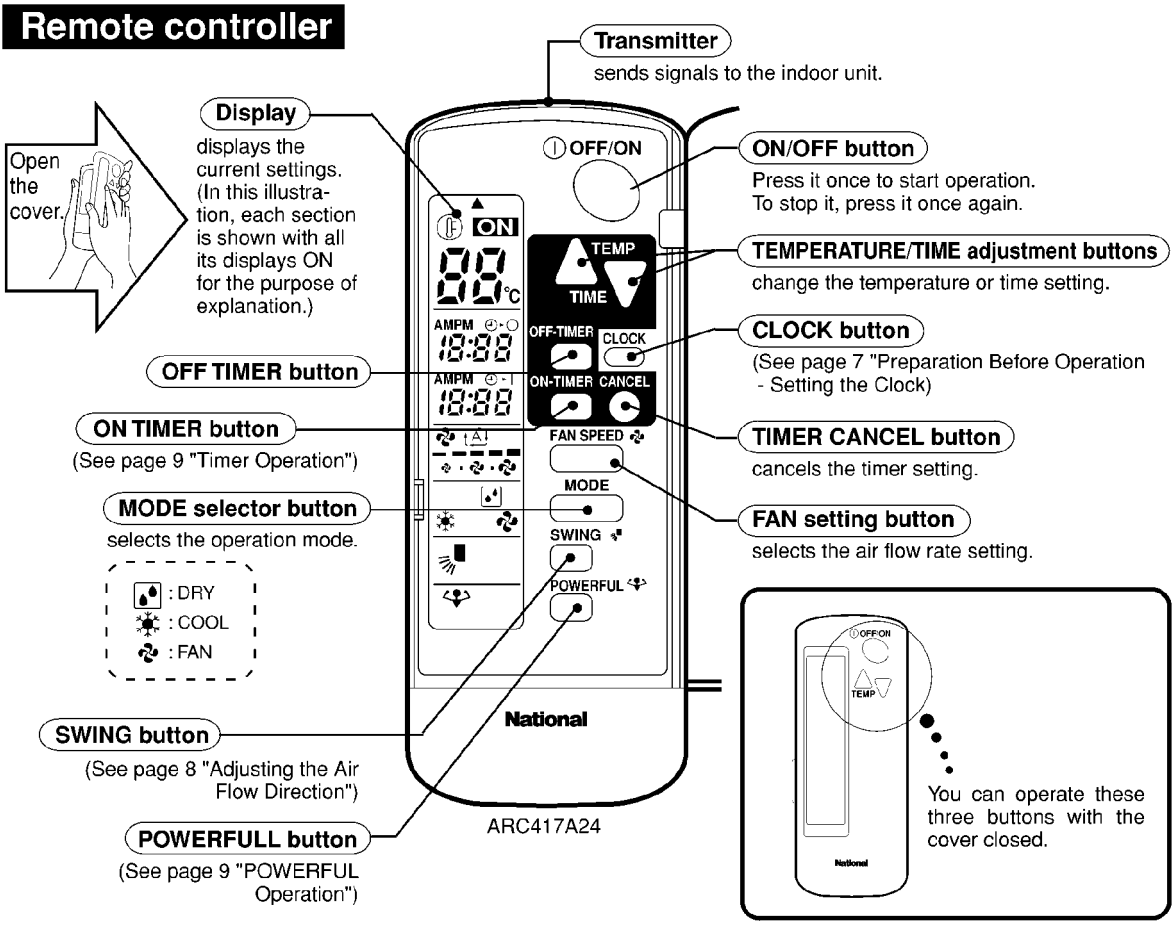
Room temperature sensor:
- senses the air temperature around the unit.

ON/OFF switch
- Push this switch once to start operation. Push once again to stop it.
- The mode is set to COOL, the air flow rate to AUTO and the temperature to 22°C. (see page 8 "DRY/COOL/FAN Mode operation.")
- This switch is useful when the remote controller is missing.

Receiver:
- receives signals from the remote controller.
- When the unit receives a signal, you will hear a short beep.

Names of Parts

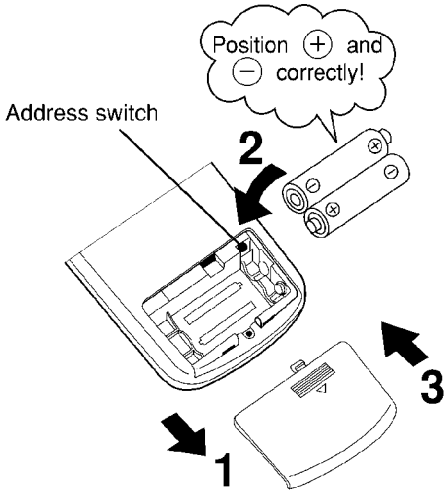
Remote controller



Preparation Before Operation

Remote controller

■ Setting the batteries



1 Press ▭ with a finger and slide the back cover to take it off.

2 Set two alkaline dry batteries (LR03).

3 Set the back cover as before.
- This will cause the figures on the display to flash. Set the clock at this point.

- The address switch is used when two indoor units are to be installed in a single room.
- If there is only one indoor unit in the room, it must be set to "1".
- To install two units in a single room, consult the shop where you bought the air conditioner.

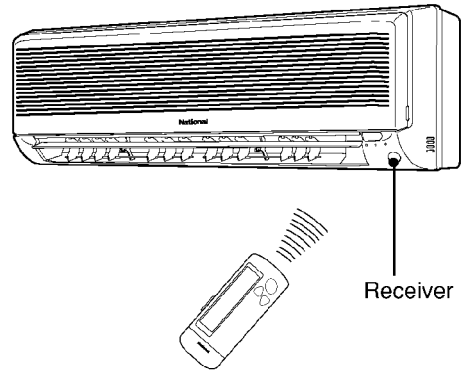
ATTENTION

About batteries

- Always replace two batteries at the same time. Replace them with new ones of an identical type.
- Do not use manganese dry batteries since their use may cause a malfunction.
- If you are not going to use the air conditioner for a long period, take out all the batteries.
- Batteries should last for about a year under normal conditions. When you find the displays unclear and signal communication often failing, replace them with new ones.
- Batteries may be exhausted even before the recommended date of consumption printed on them, if the air conditioner was manufactured many months ago.
- Never try to recharge the batteries.

■ Operating the remote controller

- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 7 m.

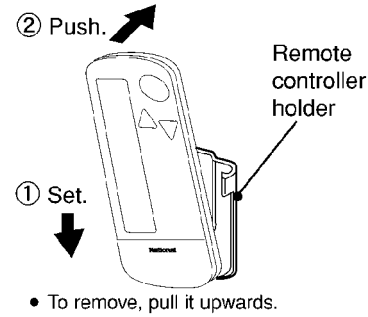


■ To fix the remote controller holder on the wall (option)

1 Choose a place from where the signals reach the unit.

2 Fix the holder to a wall, a pillar, etc. with the screws supplied with the holder.

3 Fit the claw of the holder into the bottom of the remote controller, and push the remote controller onto the wall.



- To remove, pull it upwards.

ATTENTION

About the remote controller

- Never expose the remote controller to direct sunlight.
- Dust on the signal transmitter or receiver will reduce the sensitivity. Wipe off dust with soft cloth.
- Signal communication may be disabled if an electronic-starter-type fluorescent lamp (such as inverter-type lamps) is in the room. Consult the shop if that is the case.
- If the remote control signals happen to operate another appliance, move that appliance to somewhere else, or consult the shop.

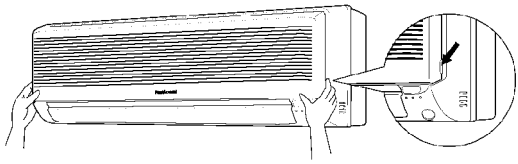
Preparation Before Operation

Indoor unit

■ Setting the air cleaning filters

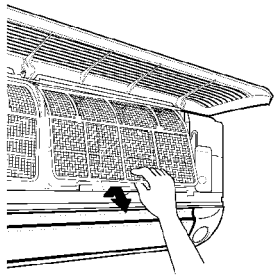
1 Open the front grille.

- Hold the grille by the tabs on the two sides and lift it until it stops with a click. (about 60°)



2 Pull out the air filters.

- Push upwards the tab at the center of each air filter, then pull it down.



3 Set the air purifying filters.

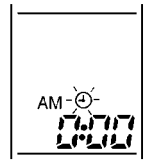
- Attach an air purifying filter to each air filter.
- You may stick a colour sample label at a convenient place on the indoor unit so that you can know when they need replacement by comparing the colours. (See page 10 "Care and cleaning – Replacing air purifying filters")

4 Set the air filters in their original positions and close the front grille.

- Operation without air filters may result in troubles as dust will accumulate inside the indoor unit.

■ Setting the clock

1 Press CLOCK.



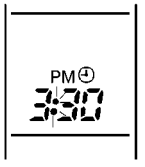
AM 10:00 is displayed.

blinks.

2 Press ▲ ▼ to set the clock to the present time.

- Holding down (▲) or (▼) button rapidly increases or decreases the time display.

3 Press CLOCK.



: blinks.

(Now the clock is set.)

■ Turn the breaker ON

- Turning ON the breaker opens the flap, then closes it again. (This is a normal procedure.)

NOTE

Tips for saving energy

- Be careful not to cool the room too much.
  Keeping the temperature setting at a moderate level helps save energy.

Recommended temperature setting

For cooling: 26°C ~ 28°C

- Cover windows with a blind or a curtain.
  Blocking sunlight and air from outdoors increases the cooling effect.
- Clogged air filters cause inefficient operation and waste energy. CLEANING lamp tells you when the air filters need cleaning. Clean them once in about every two weeks.

Please note

- The air conditioner always consumes 15 watts of electricity even while it is not operating.
- If you are not going to use the air conditioner for a long period, for example in spring or autumn, turn the breaker OFF.
- Use the air conditioner in the following conditions.

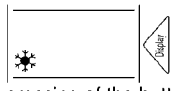
Mode	Operating conditions	If operation is continued out of this range:
COOL DRY	Outdoor temperature: 19 to 46°C Indoor temperature: 18 to 32°C Indoor humidity: 80% or below	• A safety device may work to stop the operation. • Condensation may occur on the indoor unit and drip.

- Operation outside this humidity or temperature range may cause a safety device to disable the system.

DRY/COOL/FAN Mode Operation

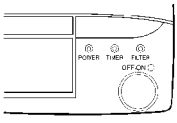
The air conditioner operates with the settings of your choice.
From the next time on, the air conditioner will operate with the same settings.

1 Press MODE and select a mode.



- Each pressing of the button advances the mode setting in sequence.

2 Press ⏻ OFF/ON.



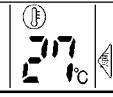
Then OPERATION lamp lights up.

■ To stop:

Press ⏻ OFF/ON once again.

Then OPERATION lamp goes off.

■ To change the temperature setting:

DRY or FAN mode	COOL mode
The temperature setting is not variable.	Press ▲ to raise the temperature and press ▼ to lower the temperature.
	Set to the temperature you like. 

■ To change the air flow rate setting:

Press FAN SPEED.

DRY mode	COOL or FAN mode
The air flow rate setting is not variable.	Five levels of air flow rate setting from " " to " " plus " " are available.

- At smaller air flow rates, the cooling effect is also smaller.

■ To change the air flow direction:

(See page 8.)

Notes on DRY mode operation

- This operation dehumidifies the indoor air when it is humid.

Adjusting the Air Flow Direction

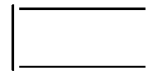
You can adjust the air flow direction to increase your comfort.

Adjusting the horizontal blade (flap)

Press SWING.

- Every time the button is pressed, " " appears or disappears.

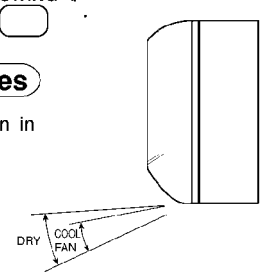
..... The flap automatically swings up and down.

 ..... To stop the flap at an angle you like, press SWING.

No display

Notes on flap angles

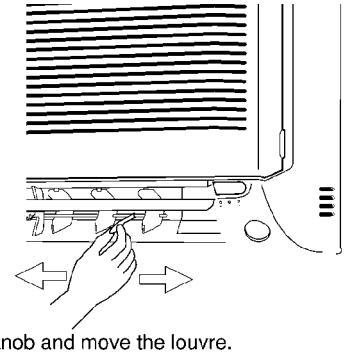
- The diffuser is kept open in DRY,COOL or FAN mode.



NOTE

- Unless [SWING] is selected, you should set the flap at a near-horizontal angle in COOL or DRY mode to obtain the best performance.
- In DRY mode, if the flap is fixed at a upward position, the flap automatically moves in about 60 minutes to prevent condensation on it.

Adjusting the louvre



Hold the knob and move the louvre.
(You will find a knob on the left-end and the right-end blades.)

ATTENTION

- Always use a remote controller to adjust the flap angle. If you attempt to move it forcibly with hand when it is swinging, the mechanism may be broken.
- Be careful when adjusting the louvre. Inside the air outlet, a fan is rotating at a high speed.

Timer Operation

Timer functions are useful for automatically switching the air conditioner on or off at night or in the morning. You can also use OFF TIMER and ON TIMER in combination.

OFF TIMER operation

- Check that the clock is correct.
  If not, set the clock to the present time. (See page 7.)

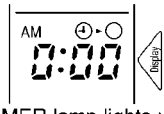
1 Press OFF-TIMER while the air conditioner is operating.

AM 0:00 is displayed.
⏲▸○ blinks.

2 Press △ ▽ until the time setting reaches the point you like.

- Every pressing of either button increases or decreases the time setting by ten minutes. Holding down either button changes the setting rapidly.

3 Press OFF-TIMER once again.



Then the TIMER lamp lights up.

■ To cancel the timer:

Press CANCEL.

Then the TIMER lamp goes off.

Notes on OFF TIMER

- When the OFF TIMER is set, the air conditioner automatically adjusts the temperature setting (0.5°C up in COOL) to prevent excessive cooling for your pleasant sleep.

ON TIMER operation

- Check that the clock is correct. If not, set the clock to the present time (See page 7).

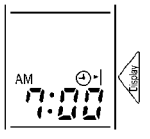
1 Press ON-TIMER while the air conditioner is not operating.

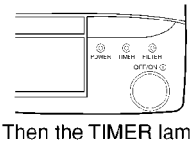
AM 6:00 is displayed.
⏲▸| blinks.

2 Press △ ▽ until the time setting reaches the point you like.

- Every pressing of either button increases or decreases the time setting by ten minutes. Holding down either button changes the setting rapidly.

3 Press ON-TIMER once again.





Then the TIMER lamp lights up.

■ To cancel the timer:

Press CANCEL.

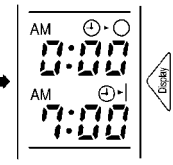
Then the TIMER lamp goes off.

Combining ON TIMER and OFF TIMER

- A sample setting for combining the two timers is shown below.

(Example)
Present time: 11:00 PM
(The unit operating)
OFF TIMER at 0:00 a.m. } Combined
ON TIMER at 7:00 a.m.

➡



Notes on ON,OFF TIMER

- When ON TIMER is set, the present time is not displayed.
- Once you set ON,OFF TIMER, the time setting is kept in the memory. (The memory is canceled when remote controller batteries are replaced.)
- When operating the unit via the ON/OFF Timer, the actual length of operation may vary from the time entered by the user.(Maximum approx. 10 minutes.)

ATTENTION

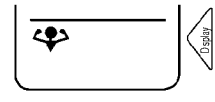
■ In the following cases, set the timer again.
- After a breaker has turned OFF.
- After a power failure.
- After replacing batteries in the remote controller.

POWERFUL Operation

POWERFUL operation quickly maximizes the cooling effect in any operation mode. You can get the maximum capacity with a touch of a button.

- Pressing the (POWERFUL) button during operation starts POWERFUL operation.
- POWERFUL operation ends in 20 minutes. Then the system automatically operates again with the settings which were used before POWERFUL operation.

1 Press POWERFUL.



■ To cancel POWERFUL operation:

Press POWERFUL.

Notes on POWERFUL operation

- **In COOL mode**
  To maximize the cooling effect, the temperature setting is fixed to 18°C and the air flow rate is fixed to the maximum setting.
  The temperature and air flow settings are not variable.
- **In DRY mode**
  The temperature setting is lowered by 3°C and the air flow rate is slightly increased.
- **In FAN mode**
  The air flow rate is fixed to the maximum setting.

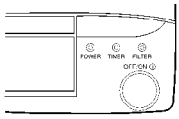
Care and Cleaning

⚠ CAUTION

Before cleaning, be sure to stop the operation and turn the breaker OFF.

Cleaning the air filters

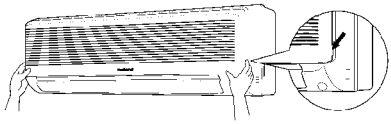
(It is recommended to clean them every two weeks.)



- Clean the air filters, when CLEANING lamp lights up.

1 Open the front grille.

- Hold the grille by the tabs on the two sides and lift it until it stops with a click. (about 60°)

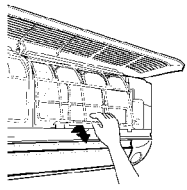


2 Push CLEANING LAMP RESET button.

(See page 4 "Names of Parts".)

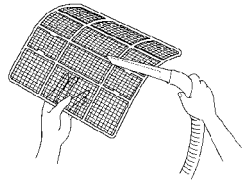
3 Pull out the air filters.

- Push a little upwards the tab at the center of each air filter, then pull it down.

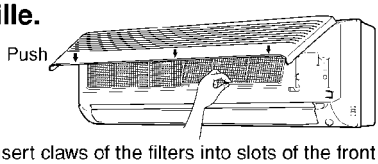


4 Take off the air purifying filters and clean them.

- Wash them with water, or clean them with a vacuum cleaner.
- If the dust does not come off easily, wash them with neutral detergent thinned with lukewarm water, then dry them up in the shade.



5 Set the air purifying filters and the air filters as they were and close the front grille.



- Insert claws of the filters into slots of the front panel. The front grille should lock at both sides and at the point in the middle. Push the grille at the 3 points indicated by ⬇.

NOTE

- In a dusty environment, clean the air filters at least once in every two weeks even before the CLEANING lamp lights up.
- Operation with dusty air filters lowers the cooling capacity and wastes energy.

Cleaning the indoor and outdoor units and the remote controller

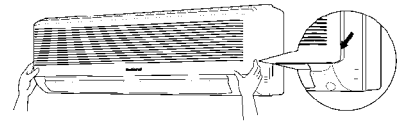
- Wipe them with dry soft cloth.
  For cleaning, do not use water hotter than 40°C, benzine, gasoline, thinner, nor other volatile oils, polishing compound, scrubbing brushes nor other hard stuff.

Replacing air purifying filters

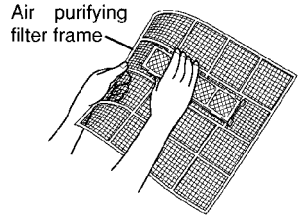
(It is recommended to replace them every three months.)

- Air purifying filters need to be replaced regularly.
- When the filter colour has turned as dark as the sample label, replace them even if they are not yet three months old.

1 Open the front grille and pull out the air filters.

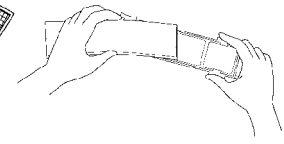


2 Take off the air cleaning filters.

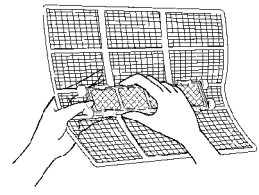


- Hold the recessed parts of the frame and unhook the four claws.

3 Detach the filter element and attach a new one.



4 Attach the air purifying filter.



5 Set the air filters as they were and close the front grille.

(Push the grille at the 3 points, two at both sides and in the middle.)

NOTE

- To order air purifying filters, contact the service shop where you bought the air conditioner.
- Once the air purifying filter element gets dirty, it is not reusable but must be thrown away.
- Operation with dirty air purifying filters:
  - cannot clean the air.
  - results in poor cooling.
  - may cause odour.

Item	Part No.
Air purifying filter (with frame)	KAF918A41
Air purifying filter (without frame)	KAF918A42

Care and Cleaning

Cleaning the front grille

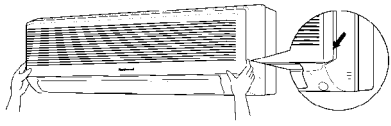
You may remove the front grille for cleaning.

⚠ CAUTION

- When removing or attaching the front grille, use a robust and stable stool and watch your steps carefully.
- When removing or attaching the front grille, support the grille securely with hand to prevent it from falling.
- For cleaning, do not use water hotter than 40°C, benzine, gasoline, thinner, nor other volatile oils, polishing compound, scrubbing brushes nor other hard stuff.
- After cleaning, make sure that the front grille is securely fixed.

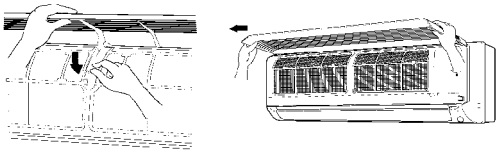
1 Open the front grille.

- Hold the grille by the tabs on the two sides and lift it until it stops with a click.



2 Remove the front grille.

- Supporting the front grille with one hand, release the lock by sliding down the knob with the other hand.
- To remove the front grille, pull it toward yourself with both hands.

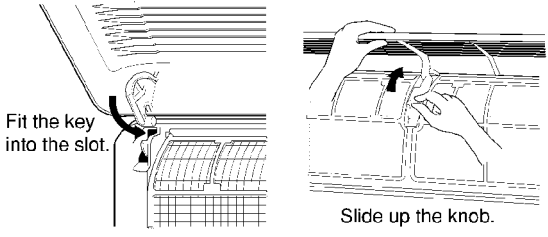


3 Clean the front grille.

- You may wipe it with a soft cloth soaked in water.
- Only neutral detergent may be used.
- You may wash the grille with water. After washing, dry it with cloth, then dry it up in the shade.

4 Attach the front grille.

- Set the 3 keys of the front grille into the slots and push them in all the way.
- Supporting the front grille with one hand, fit the lock by sliding up the knob with the other hand.
- Close the front grille slowly in this state. (Push the grille at the 3 points, two at both sides and in the middle.)



Check

Check that the base, stand and other fittings of the outdoor unit are not decayed or corroded.

Check that nothing blocks the air inlets and the outlets of the indoor unit and the outdoor unit.

Check that the earth wire is not disconnected or broken.

Check that the drain comes smoothly out of the drain hose during COOL or DRY operation.

- If no drain water is seen, water may be leaking from the indoor unit. Stop operation and consult the service shop if this is the case.

Before a long idle period

1 Operate the fan alone for several hours on a fine day to dry out the inside.

1 Press MODE and select "".

2 Press ⏻ OFF/ON.

2 Clean the air filters and set them again.

3 Take out batteries from the remote controller.

4 Turn OFF the breaker for the room air conditioner.

- The air conditioner consumes 15 watts of electricity even when it is stopped with the remote controller.

Trouble Shooting

● These cases are not troubles.

The following cases are not air conditioner troubles but have some reasons. You may just continue using it.

Case	Explanation
Operation does not start soon. ● When ON/OFF button was pressed soon after operation was stopped. ● When the mode was re-selected.	● This is to protect the air conditioner. You should wait for about 3 minutes.
The air conditioner emits sounds.	■ A flowing sound: ● This is the sound of refrigerant gas flowing in the air conditioner. ■ A 'psss' sound: ● This is a sound emitted when the refrigerant flow stops or changes inside the unit. ■ A snap sound: ● This is a sound produced when the indoor unit casing shrinks or expands slightly due to temperature changes. ■ A "plop-plop" sound: ● This is a sound heard from the air conditioner when a ventilator is operated in a closed space. Open a window or stop the ventilator.
The outdoor unit emits water or steam.	■ In COOL or DRY mode ● Moisture in the air condenses into water on the cool surface of outdoor unit piping and drips.
Mists come out of the indoor unit.	● This happens when the air in the room is cooled into mist by the cold air flow during cooling operation.
The indoor unit gives out odour.	● This happens when smells of the room, furniture, or cigarettes are absorbed into the unit and discharged with the air flow. (If this happens, we recommend you to have the indoor unit washed by a technician. Consult the service shop where you bought the air conditioner.)
The outdoor fan rotates while the air conditioner is not in operation.	■ After operation is stopped: ● The outdoor fan continues rotating for another 30 seconds for system protection. ■ While the air conditioner is not in operation: ● When the outdoor temperature is very high, the outdoor fan starts rotating for system protection.
The operation stopped suddenly. **(OPERATION lamp is on)**	● For system protection, the air conditioner may stop operating on a sudden large voltage fluctuation. It automatically resumes operation in about 3 minutes.

Trouble Shooting

● Check again

Please check again before calling a repair person.

Case	Check
The air conditioner does not operate. (OPERATION lamp is off)	● Hasn't a breaker turned OFF or a fuse blown? ● Isn't it a power failure? ● Are batteries set in the remote controller? ● Is the address switch in the remote controller set correctly? (See page 6 "Preparation Before Operation".) ● Is the timer setting correct?
Cooling effect is poor.	● Are the air filters clean? ● Is there anything to block the air inlet or the outlet of the indoor and the outdoor units? ● Is the temperature setting appropriate? ● Are the windows and doors closed? ● Are the air flow rate and the air direction set appropriately? ● Isn't a ventilator operating?
Operation stops suddenly. (OPERATION lamp flashes.)	● Are the air filters clean? ● Is there anything to block the air inlet or the outlet of the indoor and the outdoor units? Clean the air filters or take all obstacles away and turn the breaker OFF. Then turn it ON again and try operating the air conditioner with the remote controller. If the lamp still flashes, call the service shop where you bought the air conditioner.
An abnormal functioning happens during operation.	● The air conditioner may malfunction with lightening or radio waves. Turn the breaker OFF, turn it ON again and try operating the air conditioner with the remote controller.

Trouble Shooting

● **Call the service shop immediately.**

⚠ WARNING

■ When an abnormality (such as a burning smell) occurs, stop operation and turn the breaker OFF.

Continued operation in an abnormal condition may result in troubles, electric shocks or fire.
Consult the service shop where you bought the air conditioner.

■ Do not attempt to repair or modify the air conditioner by yourself.

Incorrect work may result in electric shocks or fire.
Consult the service shop where you bought the air conditioner.

If one of the following symptoms takes place, call the service shop immediately.

- **The power cord is abnormally hot or damaged.**
- **An abnormal sound is heard during operation.**
- **The safety breaker, a fuse, or the earth leakage breaker cuts off the operation frequently.**
- **A switch or a button often fails to work properly.**
- **There is a burning smell.**
- **Water leaks from the indoor unit.**

Turn the breaker OFF and call the service shop.

■ After a power failure

The air conditioner automatically resumes operation in about three minutes. You should just wait for a while.

■ Lightening

If lightening may strike the neighbouring area, stop operation and turn the breaker OFF for system protection.

We recommend periodical maintenance

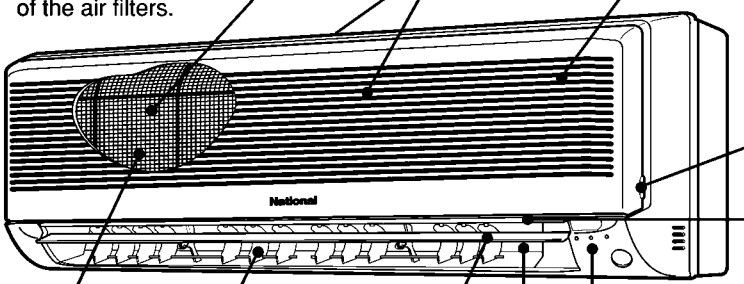
In certain operating conditions, the inside of the air conditioner may get foul after several seasons of use, resulting in poor performance. It is recommended to have periodical maintenance by a specialist aside from regular cleaning by the user. For specialist maintenance, contact the service shop where you bought the air conditioner.
The maintenance cost must be born by the user.

Indoor unit

Air purifying filter
Air purifying filters are attached to the inside of the air filters.

Air inlet

Front grille



Grille tab

Diffuser

Air filter

Louvre (vertical blades)
The louvre is inside of the air outlet.
(See page 8 "Adjusting the Air Flow Direction".)

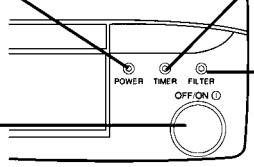
Air outlet

Flap (Horizontal blade)
(See page 8 "Adjusting the Air Flow Direction".)

Indicator lamps

OPERATION lamp (green)

TIMER lamp (yellow)
(See page 9 "Timer Operation".)



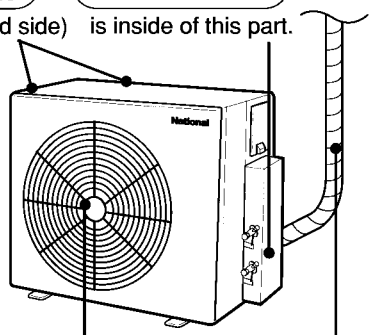
CLEANING lamp (red)
Lights up when the air filters need cleaning.
(See page 10 "Care and Cleaning".)

ON/OFF switch

Outdoor unit

Air inlets
(Back and side)

Earth terminal:
is inside of this part.



Air outlet

Refrigerant piping and inter-unit cable

Opening the front grille

How to open the front grille: (See page "Care and Cleaning")

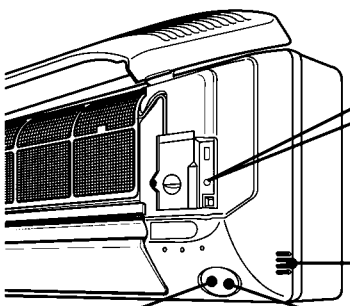
⚠ CAUTION

Before opening the grille, be sure to stop the operation and turn the breaker OFF. If the power is on, the fan may rotate inside and may cause injury.

Control panel

CLEANING LAMP RESET

CLEANING lamp reset button
- Push this button to turn the CLEANING lamp off.

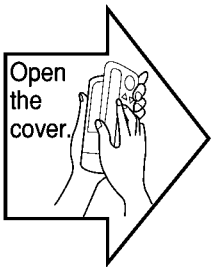


Room temperature sensor:
- senses the air temperature around the unit.

ON/OFF switch
- Push this switch once to start operation. Push once again to stop it.
- The mode is set to COOL, the air flow rate to AUTO and the temperature to 22°C. (see page 8 "DRY/COOL/FAN Mode operation.")
- This switch is useful when the remote controller is missing.

Receiver:
- receives signals from the remote controller.
- When the unit receives a signal, you will hear a short beep.

Remote controller



Transmitter
sends signals to the indoor unit.

Display
displays the current settings. (In this illustration, each section is shown with all its displays ON for the purpose of explanation.)

ON/OFF button
Press it once to start operation.
To stop it, press it once again.

TEMPERATURE/TIME adjustment buttons
change the temperature or time setting.

CLOCK button
(See page 7 "Preparation Before Operation - Setting the Clock)

OFF TIMER button

ON TIMER button
(See page 9 "Timer Operation")

TIMER CANCEL button
cancels the timer setting.

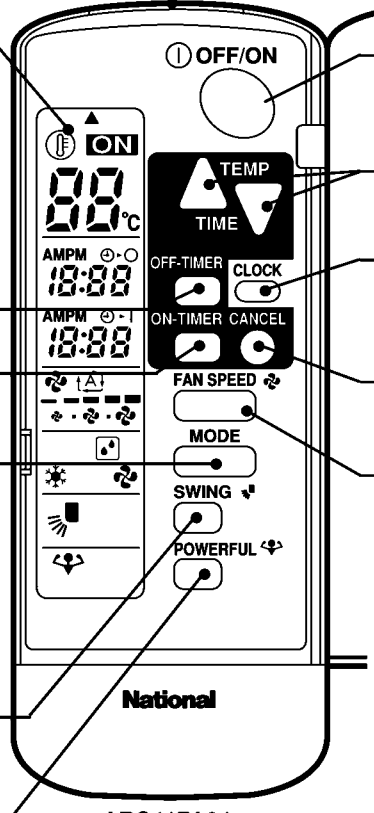
MODE selector button
selects the operation mode.

: DRY
: COOL
: FAN

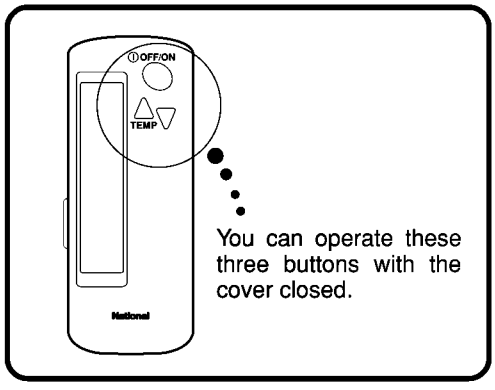
FAN setting button
selects the air flow rate setting.

SWING button
(See page 8 "Adjusting the Air Flow Direction")

POWERFULL button
(See page 9 "POWERFUL Operation")



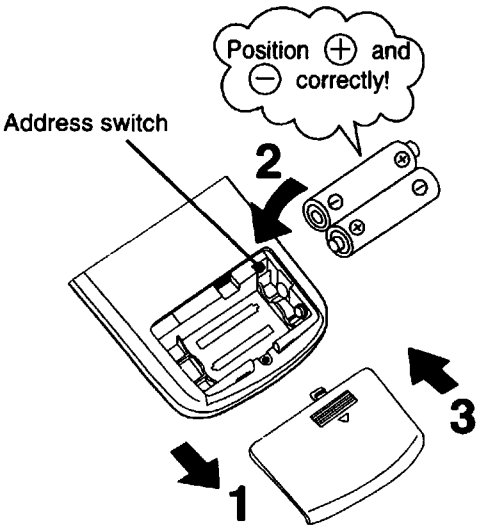
ARC417A24



You can operate these three buttons with the cover closed.

Remote controller

■ Setting the batteries



1 Press ▽ with a finger and slide the back cover to take it off.

2 Set two alkaline dry batteries (LR03).

3 Set the back cover as before.
- This will cause the figures on the display to flash. Set the clock at this point.

- The address switch is used when two indoor units are to be installed in a single room.
- If there is only one indoor unit in the room, it must be set to "1".
- To install two units in a single room, consult the shop where you bought the air conditioner.

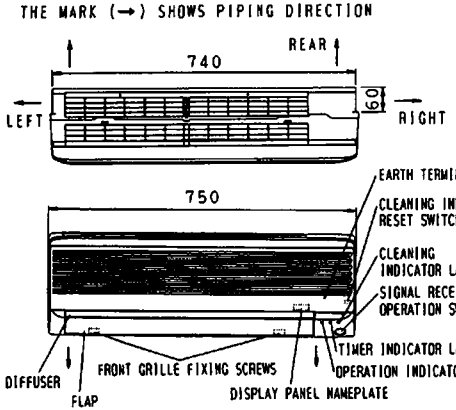
ATTENTION

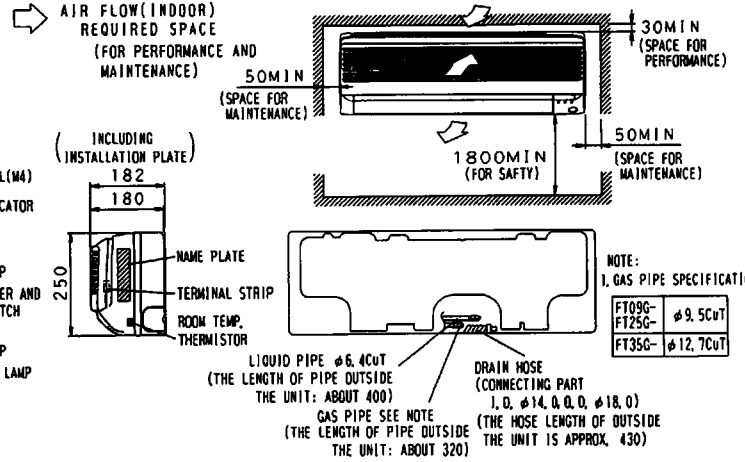
About batteries

- Always replace two batteries at the same time. Replace them with new ones of an identical type.
- Do not use manganese dry batteries since their use may cause a malfunction.
- If you are not going to use the air conditioner for a long period, take out all the batteries.
- Batteries should last for about a year under normal conditions. When you find the displays unclear and signal communication often failing, replace them with new ones.
- Batteries may be exhausted even before the recommended date of consumption printed on them, if the air conditioner was manufactured many months ago.
- Never try to recharge the batteries.

CS-MC90AKH
CS-MC120AKH

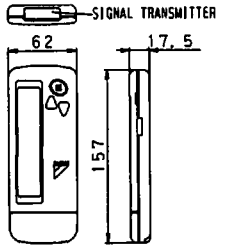
Unit:mm



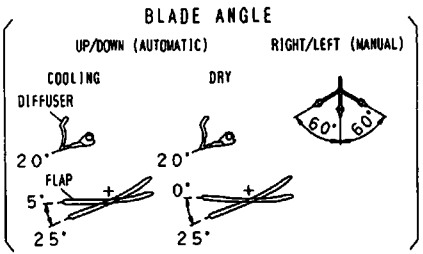


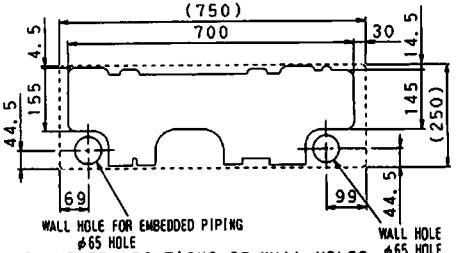
NOTE:
1. GAS PIPE SPECIFICATION

FT09G- FT25G-	φ9.5CuT
FT35G-	φ12.7CuT



(ARC417A1)
WIRELESS REMOTE CONTROLLER



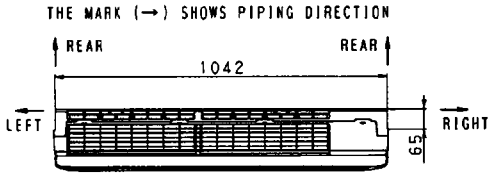


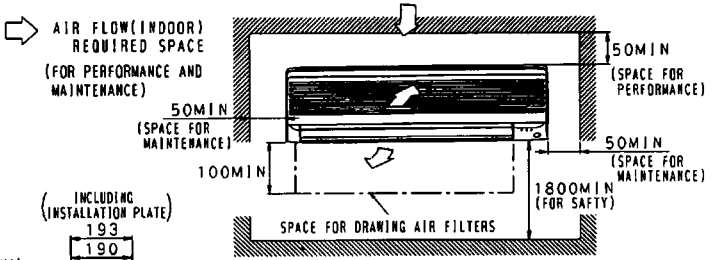
STANDARD LOCATIONS OF WALL HOLES

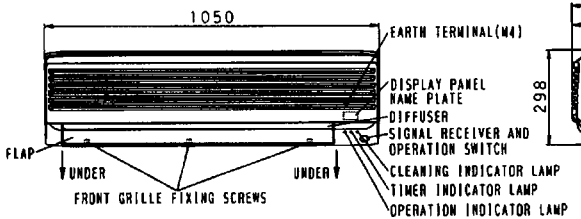
3D006243A

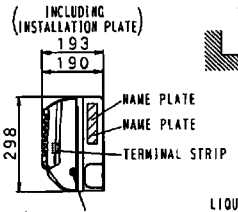
CS-MC180AKH

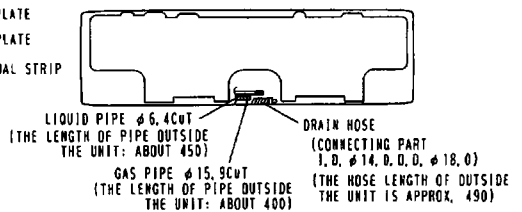
Unit:mm

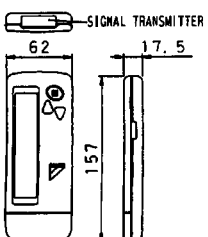




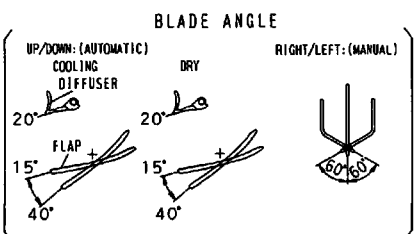


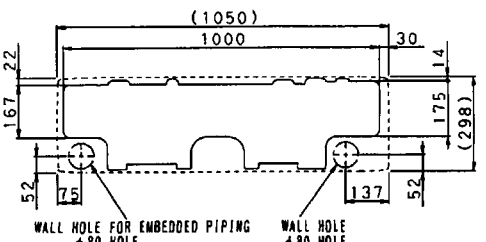



LIQUID PIPE φ6.4OUT
(THE LENGTH OF PIPE OUTSIDE THE UNIT: ABOUT 450)
GAS PIPE φ15.9OUT
(THE LENGTH OF PIPE OUTSIDE THE UNIT: ABOUT 400)
DRAIN HOSE
(CONNECTING PART I.D. φ14, O.D. φ18.0)
(THE HOSE LENGTH OF OUTSIDE THE UNIT IS APPROX. 490)



(ARC417A1)
WIRELESS REMOTE CONTROLLER



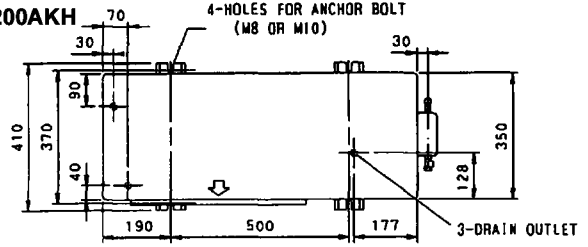


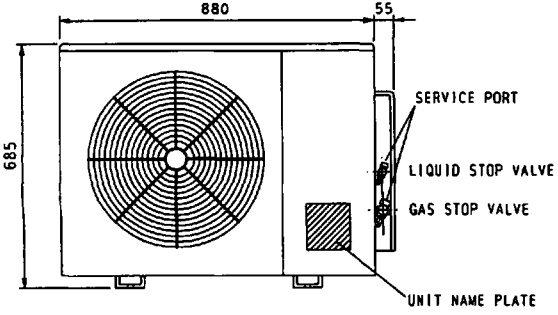
STANDARD LOCATIONS OF WALL HOLES

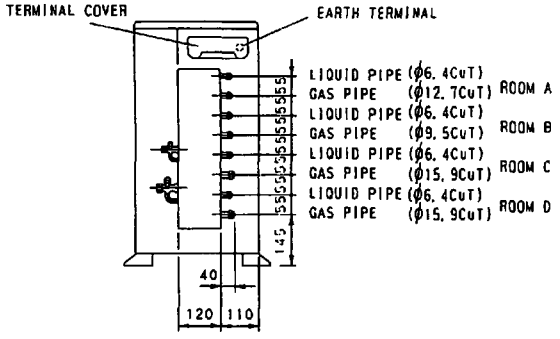
3D005346

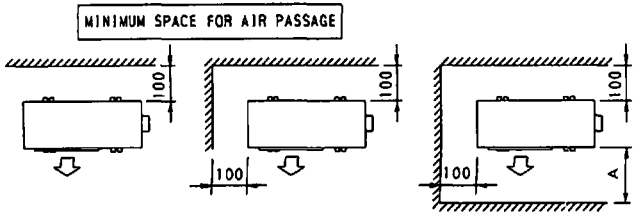
CU-4MC200AKH

Unit:mm

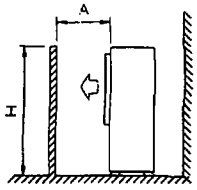






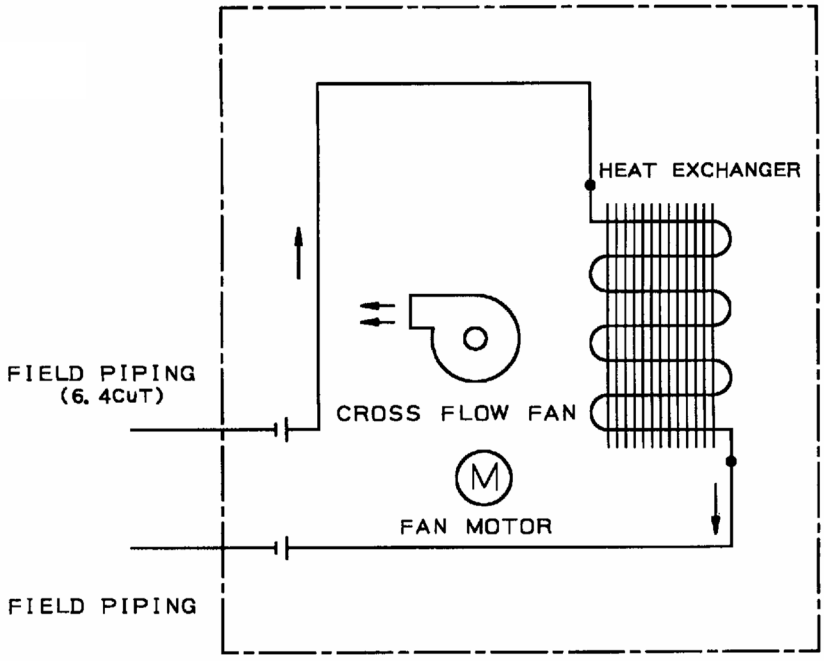


	A
H≦1000	350
H>1000	600



DW725-662

CS-MC90AKH
CS-MC120AKH



9.5CuT···FT25G
12.7CuT···FT35G

REFRIGERANT FLOW

← COOLING

DW3212146
4D000694